

COMPETENCE-BASED QUALIFICATIONS

1ST JANUARY 2008

Competence-based Qualifications 5/2008
FINNISH NATIONAL BOARD OF EDUCATION

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ISBN 978-952-13-3620-1 (paperback)

ISBN 978-952-13-3621-8 (pdf)

ISSN 1455-6847

Cover design: Studio Viiva Oy

Editia Prima Oy, Helsinki 2008

TO THE READER

This publication contains an alphabetical listing of all competence-based qualifications conforming to the Vocational Adult Education Act (631/1998). It also covers the modules included in those qualifications, where the respective Requirements of the Competence-based Qualifications have been adopted by the beginning of 2008. The purpose of this publication is to provide those working at educational institutions, in labour administration, State Provincial Offices and apprenticeship centres, in particular, with a quick reference to the composition and modules of different qualifications.

The modules of each qualification are defined in the relevant Requirements of the Competence-based Qualification, adopted by the Finnish National Board of Education. In practical terms, however, it is sometimes necessary to have a quick overview of the modules of a particular qualification. They need to be checked in cases such as when education providers attend to individualisation of application procedures for competence-based qualifications and preparatory training, completion of qualifications and acquisition of required vocational skills.

Competence-based qualifications can be completed in modules. The qualification certificate is awarded upon completion of all modules. On request, however, it is possible to receive a separate certificate for completion of an individual qualification module.

Under the name of each qualification, this document shows the total number of modules, which indicates the number of modules that must be taken in order to complete the entire qualification. The common modules of the qualification, which are compulsory for all candidates, are listed first. There are a few qualifications that do not have any common modules; instead, they provide candidates with a range of alternative compulsory modules. These are followed by a list of optional modules. Some qualifications also include alternative optional modules.

Any enquiries concerning this publication should be directed to Ms. Marketta Saarinen, Counsellor of Education, at the National Board of Education.

COMPETENCE-BASED QUALIFICATIONS

This publication contains basic information about the Finnish competence-based qualifications included in the qualifications framework at the beginning of 2008. The qualifications are presented in order according to the classification of fields and subfields of education used in the educational administration.

The Vocational Qualifications Act (306/1994) came into force on 1st May 1994 at the same time as the Vocational Qualifications Decree (308/1994) complementing the Act. Within the new educational legislation, effective as from the beginning of 1999, vocational qualifications intended for adults are governed by the Vocational Adult Education Act (631/1998) and Decree (812/1998). The Act recognises three different types of qualifications: in *upper secondary vocational qualifications*, candidates demonstrate their command of basic assignments in the field, *further vocational qualifications* involve proof of vocational skills required of skilled workers and *specialist vocational qualifications* are intended for demonstrating command of the most demanding work assignments in the field. Legislation refers to all these qualifications as competence-based qualifications. Upper secondary vocational qualifications completed in the form of competence-based qualifications are equivalent to those taken within the framework of the curricular system governing upper secondary vocational education and training intended for young people.

The law states that the qualifications framework is determined by the Ministry of Education. The Ministry revises the qualifications framework annually.

At the beginning of 2008, the qualifications framework comprised 360 qualifications. About 62,000 adults took competence tests in 2007.

This publication includes a description of each qualification with the Requirements of the Competence-based Qualification already adopted by the National Board of Education. The descriptions are concise and more specific information about vocational skills requirements can be found in the Requirements of Competence-based Qualifications. Those qualifications for which the respective Requirements of the Competence-based Qualification are yet to be adopted are referred to by title only.

The National Board of Education hopes that educational institutions will make more use of the qualifications modules to structure their provision of training. This would ensure that vocational adult training is structured on the basis of about 3,500 completed qualifications modules, which were prepared in collaboration with representatives from the world of work. Those participating in preparatory training for competence-based qualifications must be provided with an opportunity to take competence tests as part of the training. A certificate for completion of the competence-based qualification is awarded once all parts of the qualification have been completed to an acceptable standard.

The National Board of Education hopes that this publication will prove useful for those planning to take a competence-based qualification and for those responsible for purchasing training. Comments on the publication may be sent to Ms. Marketta Saarinen, Counsellor of Education, at the National Board of Education.

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HUMANITIES AND EDUCATION

LEISURE ACTIVITIES AND YOUTH WORK

VOCATIONAL QUALIFICATIONS

- Vocational Qualification in Youth and Leisure Instruction

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification in Special Needs Instruction for Children and Young People

Vocational Qualification in Youth and Leisure Instruction

The common modules of the qualification are *interaction and communication*, *individual and group instruction* and *instruction in different operating environments*. Of the optional modules available, either *instruction in youth activities* or *instruction in leisure activities* must be taken. In addition, two of the following optional modules must also be taken: *instruction in civic and organisational activities*, *instruction in project activities*, *prevention of young people's marginalisation*, *instruction in multicultural activities*, *production of youth and leisure services*. The qualification title is Youth and Leisure Instructor.

Candidates must be able to express themselves clearly and fluently both orally and in writing in their native language. They must possess the listening, speaking, meeting, negotiation and performance skills needed in their work. They must know how to use the most common forms of information dissemination and to market the services and products of their organisation. They must command occupational communication in at least one foreign language. They must be familiar with the basic topics, techniques and working methods of youth information and information dissemination in the leisure field. They must be able to independently use information technology, the most common computer software and information networks and search for information and materials from different sources. In the planning and implementation of instruction activities, they must take account of the human life cycle, development phases, growth environments and the educational goals of youth and leisure activities.

Candidates must know how to organise activities that support the life management skills of those under instruction, educational events and educational situations as well as clubs, camps, outings and other goal-oriented activities in different operating environments. In their work, they must act in an encouraging manner, supporting the strengths of individual people and groups and taking the abilities and needs of people in need of special support into account. They must be familiar with the characteristics and basic techniques of different fields of interest and must know how to take account of principles, permit procedures and regulations related to events, occasions and activities. They must assume responsibility for their own safety and for the safety of those under their instruction in all situations. They must possess first aid skills at least equivalent to first aid level 2. They must be capable of co-operating with fields close to youth and leisure activities as well as with the families of children and young people. They must work methodically, economically and in compliance with occupational ethics. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have chosen instruction in youth activities must know how to function with young people in different operating environments and to support their growth and development. Those who have chosen instruction in leisure activities must know how to instruct people of different ages in leisure activities, applying the principles and methods of communal education.

Those who have completed the qualification may plan and organise voluntary and communal civic, cultural, physical education and other leisure activities and instruct people of different ages in these activities.

Further Qualification in Special Needs Instruction for Children and Young People

The common modules of the qualification are *special education and instruction*, *multivocational work*, *communalitOy and inclusion* and *cultural interaction*. The two optional modules of the qualification are *instruction and support for children with special needs and their families* and *instruction and support for young people with special needs and their families*. In addition, it is also possible to take the *entrepreneurship* module.

Special needs instructors for children and young people function in demanding educational, instructional and organisational assignments. Their specialised competence covers social and networking skills and the ability to identify individual and communal challenges to instruction. They are capable of functioning in networked co-operation, projects, campaigns and activity-related situations and, where necessary, they are able to organise these. Special needs instructors are capable of functioning as experts in multivocational teams with knowledge of children and young people, their cultures, special education and the well-being and living conditions of families.

Special needs instructors for children and young people are capable of facing and dealing with special issues and challenges related to education and society while working with children, young people and their families. These include aspects relating to employment, housing or multiculturalism and other factors related to the well-being of families. Special needs instructors understand the underlying causes behind social problems and the effects of these on individuals and communities. They are capable of making proposals and initiatives to improve the circumstances of children, young people and families and to promote their well-being. Special needs instructors have sound interaction and co-operation skills, which they know how to apply purposefully and responsibly in their work. In their assignments, they function in an ethical and networked manner. Production of services and activities in different operating environments requires flexibility, creativity and organisational skills.

Special needs instructors for children and young people may work within special youth work, multicultural work and child welfare work, in workshops and activity centres for young people and special groups, at institutions and hospitals, in civic and organisational activities, in day care, within parish welfare work for children and families, at schools, afternoon clubs and leisure centres, in business enterprises operating in the field and as independent entrepreneurs.

LANGUAGES

VOCATIONAL QUALIFICATIONS

- Vocational Qualification in Sign Language Instruction

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification for Community Interpreters

Vocational Qualification in Sign Language Instruction

The compulsory modules of the qualification are *sign language and functioning in a sign language cultural environment, Finnish/Swedish language and functioning in a Finnish/Swedish-speaking cultural environment, instruction and assistance in sign language operating environments* and *communication and interaction*. Two or three of the following optional modules must also be taken, depending on the scope of the modules: *functioning in sign language and spoken language cultural environments, instruction and assistance for people using sign language, instruction and assistance for deaf-blind people, instruction and assistance for people using sign language communication, instruction in expression skills*. The qualification title is Sign Language Instructor.

Candidates must be familiar with the special features of sign language culture and be acquainted with different ways of interpreting them. They must know how to choose the appropriate form of language for each individual communication situation. They must be familiar with the structures and vocabulary used in Finnish sign language and be able to compare these with spoken languages. They must command the use of sign language in different everyday situations and be capable of participating in social debates and decision-making in sign language. They must be able to use the basic sign language vocabulary related to sign language instruction in their own occupation. They must know how to use text telephones and videophones as well as other technical aids used in the field. They must be capable of exploiting written Finnish/Swedish-language material related to sign language and deaf people's culture and of functioning bilingually in their occupation. They must be able to communicate with representatives of signed and spoken languages in different situations and operating environments. They must be familiar with the associations, service organisations, activity centres and educational institutions operating in the sign language field as well as with the diaconal work and church activities carried out among people using sign language.

Candidates must know how to use information technology as well as information retrieval systems at libraries and other sources of information. They must be capable of participating in multidisciplinary co-operation and in planning activities. In their instruction and assistance work, they must take account of the different phases of human development and the human life cycle as well as the needs of people in need of special support. They must assume responsibility for their own safety and for the safety of those under their instruction in all situations. They must possess first aid skills at least equivalent to first aid level 1. They must act in accordance with the occupational ethics of sign language instruction, labour legislation as well as with occupational health and safety and other regulations.

Candidates must be familiar with the key methods of information dissemination in the sign language field and know how to express themselves diversely in different situations and on different occasions. They must know how to draw up work-related documents in sign language

and/or in the Finnish/Swedish language. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification may function in instruction and assistance assignments for the sign language community and for people using signing in communication.

Further Qualification for Community Interpreters

The common modules of the qualification are *an interpreter's functional capabilities, command of working languages* and *interpreting skills*.

Candidates must be familiar with the codes of ethics and practice governing the interpreting field and know how to act accordingly. They must be aware of their professional responsibility and of the significance of their work and confidentiality. They must know how to work in a client-focused manner. They must know the rules and official procedures of the Finnish world of work. They must be able to guide their clients and comply with statutes. They must attend to the entire work process from drawing up a contract to final feedback. They must be familiar with the general interpreting service system and different forms of services. They must know how to develop and update their own skills.

Candidates are required to have two working languages known as A and B languages, one of which must be either Finnish or Swedish. The A language refers to the interpreter's mother tongue, whereas the B language is the second working language, which the interpreter must be capable of using as a target language at a professional level of communication. They must understand structurally and linguistically complex texts. They must be able to write texts without difficulty in both of their working languages. They must be familiar with situations that require interpreting. They must command frequently occurring interpreting situations. They must be able to deal with professional terminology from different fields quickly and reliably in both of their working languages.

Candidates must command the interpreting situation and oral communication. They must be familiar with the cultures relating to their working languages. They must know how to use different tools and interpreting techniques as required by each assignment. They must know how to select the correct interpreting method for each situation. They must master remote interpreting.

The most typical form of community interpreting involves transactions between immigrants and the Finnish authorities. Use of an interpreter's services makes it possible for the authorities to discharge their official duties even when they do not understand a client's language and cultural background.

TEACHING AND EDUCATION

VOCATIONAL QUALIFICATIONS

- Vocational Qualification in Child Care and Education and Family Welfare

Vocational Qualification in Child Care and Education and Family Welfare

The common modules of the qualification are *care for and guidance of children's growth, family-focused and communal educational work* and *instruction in children's afternoon and camping activities*. Two of the following optional modules must also be taken: *instruction in expression skills, dealing with children and families in need of special support and their guidance, functioning in a multicultural working environment*. The qualification title is Children's Instructor.

Candidates must be familiar with the core content of the Christian Faith and be able to provide Christian education based on baptism instruction in child care and education provided by the Church and religious education complying with the objectives of day care in other educational work. They must attend to children's holistic well-being in accordance with statutes and instructions concerning nursing and care. In their work, they will function in a child-focused manner, as required by each child's age, development phase and special needs, taking children's physical, mental and social abilities into account. They must be able to guide and support the growth, development and learning of individual children and groups of children in a diverse manner, using different means of expression and methods of instruction.

Candidates must know how to work in different operating environments and in co-operation with day care, child health clinics, schools, pupil welfare services, child welfare authorities, different organisations and the local parish, in order to promote the well-being of families. In their educational work, they must function in a family-focused manner, respect the rights to self-determination of families and support families in Christian education in particular. Through their actions, they must promote the interaction, well-being, sense of togetherness and functional abilities of families. They must be familiar with the special features of afternoon activities and know how to plan and implement different leisure activities. They must possess basic practical skills in camping and first aid skills equivalent to first aid level 2. They must be able to assess and develop their working methods, work, working environment and vocational competence. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification possess the skills to work both for the Church and for other sectors of society in assignments related to activities supporting the growth of children, pre-teens and their families. The work of Children's Instructor is based on Christian values.

OTHER EDUCATION IN HUMANITIES AND EDUCATION

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification for Vergers

Further Qualification for Vergers

The common modules of the qualification are *church services and other church events, burial services and maintenance of green areas and property maintenance*. In addition to these, one of the following modules must also be selected: *supervisory assignments* and *catering services*. All candidates may also choose to take the optional *entrepreneurship* module.

Candidates must know and understand the contents and structures of services and other church ceremonies and also understand the core content of ethics and the Christian faith.

They must take account of the ecclesiastical year and the symbolism involved in different church events. They must know how to ring bells.

They must be able to co-operate with members of their working community and the parish. They must command key statutes relating to customer safety and the action to be taken in the event of accidents and emergencies. They must attend to general order. They must be familiar with acts, other statutes and regulations governing their area of assignments as well as with parish standing orders and rules of procedure. They must be capable of acting as instructors of temporary workers and students in their field and as assessors of their vocational skills.

Candidates must be able to carry out tasks relating to burial independently and comply with standing orders governing burial services. They must know how to tend plants and planted areas and use machinery and tools needed to maintain green areas. They must command the basics and working methods of maintaining parish properties and the basic issues and requirements relating to realty maintenance agreements. Vergers must command the principles of routine and intensive cleaning of facilities and care and storage of textiles and articles. Vergers must command regulations relating to safety of properties. They must understand the basic principles of operational and financial planning.

Candidates must be able to plan and organise operations within their own working area and determine the required number and skills of staff. They must command recruitment and acquainting procedures and know how to supervise and guide staff. They must command practical supervisory skills.

Candidates must know how to plan coffee and meal services and prepare and serve food. They must command the main principles of nutritional recommendations and the most common special dietary requirements.

Candidates must command the principles of customer service.

Candidates selecting the entrepreneurship module must also command skills and knowledge relating to setting up and running a business.

Those who have completed the qualification may work as employees of Evangelical Lutheran or Greek Orthodox Church parishes in various assignments.

CULTURE

CRAFTS AND DESIGN

VOCATIONAL QUALIFICATION

- Vocational Qualification in Crafts and Design

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification in Animal, Plant and Geological Conservation
- Further Qualification for Boat-builders
- Further Qualification for Blacksmiths
- Further Qualification in Ceramics
- Further Qualification in Clothing
- Further Qualification for Engravers
- Further Qualification for Gilders
- Further Qualification for Goldsmiths
- Further Qualification for Glassblowers
- Further Qualification for Gunsmiths
- Further Qualification In Handicrafts
- Further Qualification in Interior Design
- Further Qualification In Joinery
- Further Qualification for Model-builders
- Further Qualification for Musical Instrument Builders
- Further Qualification for Painters
- Further Qualification for Restorers
- Further Qualification for Romany Culture Instructors
- Further Qualification in Sami Crafts
- Further Qualification for Silversmiths
- Further Qualification for Stonecutters
- Further Qualification in Textiles

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification for Blacksmiths
- Specialist Qualification for Boat-builders
- Specialist Qualification in Ceramics
- Specialist Qualification in Clothing
- Specialist Qualification for Engravers
- Specialist Qualification for Gilders
- Specialist Qualification for Glassblowers
- Specialist Qualification for Goldsmiths
- Specialist Qualification for Gunsmiths
- Specialist Qualification in Interior Design
- Specialist Qualification for Model-builders
- Specialist Qualification for Musical Instrument Builders
- Specialist Qualification in Ornamental Wood Carving
- Specialist Qualification for Painters
- Specialist Qualification for Restorers

- Specialist Qualification for Romany Culture Instructors
- Specialist Qualification in Sami Crafts
- Specialist Qualification for Silversmiths
- Specialist Qualification for Stonecutters
- Specialist Qualification in Textiles

Vocational Qualification in Crafts and Design

The compulsory module common to all competence areas of the qualification is *aesthetic, visual and cultural competence*. The compulsory modules of the competence area in handicraft design and production are *mastering traditions, design in handicraft production, technical handicraft production and manual skills, handicraft design and production* and *customer-focused handicraft production*. The compulsory modules of the competence area in textiles and clothing design and production are *application of culture, textiles and clothing design, technical production and manual skills, design and production* and *customer-focused production*. The compulsory modules of the competence area in environmental design and construction are *application of the culture of the occupational field, documentation, technical fulfilment and manual skills, planning and fulfilment of work* and *customer-focused fulfilment*. Three of the following optional modules must also be taken in all competence areas: *presentation techniques and modelling, manual skills and production, guidance and service activities, production of traditional textiles, traditional working methods, production of custom articles, product development and production, environmental and spatial construction, business and production, business and co-operation*. The qualification title is Artisan.

Candidates must know how to use their aesthetic and visual knowledge as well as colour, form and spatial composition in their work. They must be able to set forth ideas, plans and products by means of presentation technology and create aesthetic and visually effective thematic drafts, models and documents. They must be familiar with the roots of Finnish culture and folklore as well as with the history and present situation of crafts and design. They must possess knowledge of new and traditional materials, working methods and tools, as required of craftspeople in their occupational field. They must be familiar with design and production processes in their occupational field. They must know how to use working plans and technical drawings and to document the progress of work. In addition, they must command the skills and knowledge of the compulsory and optional modules in their competence area.

Those who have completed the qualification possess the skills to work as employees or self-employed people in different production, repair, servicing or restoration assignments within their competence area.

Further Qualification in Animal, Plant and Geological Conservation

The qualification comprises two competence areas: conservation as an entrepreneur and conservation in the museum sector.

At least three of the following modules must be selected in the competence area in conservation as an entrepreneur: *bird taxidermy, mammal taxidermy, fish, reptile and amphibian taxidermy* and *conservation of bones, skulls and teeth*.

At least three of the following modules must be selected in the competence area in

conservation in the museum sector: *bird taxidermy*, *mammal taxidermy*, *fish, reptile and amphibian taxidermy* and *conservation of skeletons*. In addition, two of the following modules must also be chosen: *planning and implementation of exhibitions*, *preparation of plants, mushrooms and insects and other invertebrates* and *preparation of fossils and making reproductions*.

In addition, it is also possible to choose the *entrepreneurship* module in both competence areas.

Candidates must command the basics of ecology when preparing vertebrate animals and animal groups for taxidermy. They must be familiar with a sufficient number of animals relevant to their chosen qualification modules. They must know how to collect and document biological materials or ready-made preparations, prepare them for transportation, dispatch and store them.

Candidates must know how to use hand tools, machinery, related auxiliary equipment and materials and substances required in conservation correctly. They must know how to conserve animals, finish their work and be familiar with the anatomy of animals relevant to their chosen qualification modules.

In their work, they must take note of occupational health and safety and be familiar with labour laws. They must command economical and ergonomic working methods. They must command customer service and be capable of co-operating with professionals from different fields. They must master professional terminology and have adequate command of English. They must know how to seek additional information from different sources.

Candidates who have chosen conservation of bones, teeth, skulls and skeletons must know how to clean and bleach objects properly. They must know how to prepare hunting trophies. They must know how to collect, document, prepare for transportation, dispatch and store biological materials or preparations.

Those who have chosen conservation of skeletons must know how to assemble steady skeletons in an anatomically correct manner.

In the planning exhibitions module, candidates must be able to design and implement natural history exhibition collections. They must know how to use different techniques and document their work.

Those who have chosen preparation of plants, mushrooms and insects and other invertebrates must have sufficient knowledge of different species. Among other things, they must know how to prepare samples using correct methods.

Those who have chosen preparation of fossils must command the basics of palaeontology. They must be able to identify minerals, stones and soil types. They must know how to make reproductions and to prepare and document fossil material.

Those who have chosen entrepreneurship must be able to assess their own potential and opportunities within their field. They must be familiar with the requirements involved in setting up and running a business.

Those who have completed the qualification may work as taxidermists and/or conservators in natural history museums or as independent entrepreneurs.

Further Qualification for Boat-builders

The common module of the qualification is *basic boat-building skills*. One of the following competence areas must also be taken: *glass-fibre reinforced plastic boats*, *wooden boats*, *metal boats 1 + 2*. One of the following eight optional modules must also be taken: *advanced composite structures*;

riggings, rigs and sails; lasts and moulds; wooden composite structures; repair and upkeep of wooden boats; repair and upkeep of glass-fibre reinforced plastic boats; repair and upkeep of metal boats; upholstery. In addition, it is also possible to take the *entrepreneurship* module.

Candidates must be familiar with the most common processes and methods applied in the reinforced plastics industry, as well as its raw materials and their characteristics. They must be familiar with wood, its properties and chemical structure and be able to select wood of the correct quality according to each application. They must be able to select panel materials, processed products and semi-finished products and adhesives and gluing methods suitable for boat-building. They must be able to use the tools and machinery employed in reinforced plastic work and woodworking correctly and safely. They must be familiar with the most common metallic materials and their alloys and be able to perform the simplest of metal working tasks. They must be familiar with the most common boat types and models and their applications. They must be able to read technical drawings and define and dimension the shapes of boat parts. In their work, they must act in an economical, service-oriented and co-operative manner and in accordance with occupational health and safety and other safety regulations. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification may work in assignments related to the manufacturing, servicing and repair of boats in boat-building shops and repair shops.

Further Qualification for Blacksmiths

The Further Qualification for Blacksmiths comprises two compulsory modules. The qualification consists of two specialisation areas: blacksmith and knifsmith. In the specialisation area for blacksmiths, the modules of the qualification are *common vocational skills in smithery* and *preparation of forged products*. In the specialisation area for knifsmiths, the modules of the qualification are *common vocational skills in smithery* and *preparation of knives*. In addition, candidates specialising in either area may take the *entrepreneurship* module.

Candidates must know how to carry out basic metalwork of blacksmiths using steel and non-ferrous metals. They must command and be familiar with materials, being able to choose and acquire appropriate materials for each specific product and know how to handle these. They must take note of occupational safety at all stages of their work. They must be familiar with the prerequisites of business activities. They must be able to assess the risks involved in setting up and developing a business. They must be co-operative and capable of serving customers. They must know how to acquire and use field-specific information as needed. They must know how to price and market their products and services properly.

Candidates taking the preparation of forged products module must, among other things, know how to design and document products. They must know how to heat metals. They must know how to forge metals using hand and power hammers. They must command riveting and bonding techniques. They must know how to flame-cut and join metals using the most common welding techniques. They must know how to forge and heat-treat tools and blades. They must know how to select finishing and surface treatments according to the intended use of each product.

Candidates taking the preparation of knives module must, among other things, know how to forge knife blades using the correct technique and in the right sequence. They must know how to grind and polish knife components. They must know how to heat-treat knife blades.

They must know how to prepare ferrules. They must know how to perform minor wood- and leatherwork relating to preparation of knives and sheaths. They must know how to finish and decorate knives and sheaths. They must also know how to use special techniques related to the field. They must command some of the following techniques: preparation of laminated blades; metal strip inlay; pattern dyeing, cutting or printing of leather; sand-casting of ferrules; preparation of birch-bark handles; preparation of birch-bark sheaths; or some other special technique.

Those who have selected the entrepreneurship module must be able to assess their own entrepreneurial potential and determine a business enterprise's operating conditions. They must be able to examine the opportunities and obligations involved in entrepreneurship.

Those who have completed the qualification may work as entrepreneurs, hourly paid teachers at adult education centres or crafts and design institutions, as part-time entrepreneurs or instructors. The qualification provides capabilities for restoration and conservation assignments, preparation of new products, repairs to metal objects, teaching and instruction.

Further Qualification in Ceramics

Candidates must demonstrate in the competence tests that they are familiar with the essentials of the *overall processes of ceramics manufacture*. They must also select at least five of the following functional areas: *production of pastes and glazes* (recognition of ceramics raw materials, their properties and significance, production of plastic paste, production of castables, production of glazing), *competence in techniques* (production of gypsum moulds, moulding techniques, casting techniques, extrusion techniques), *craft shaping techniques* (throwing work, hand construction techniques), *glazing* (maintenance of glaze slip, quality control and adjustments, glazing techniques and their application, glazing work stages), *decoration and production of ceramic decal transfers* (ceramic colours and their production, hand decoration techniques, mechanical decoration techniques, making and using decal screens, making transfers), *firing techniques* (firing kilns and their operating principles, loading and unloading a kiln and servicing kiln equipment, firing a kiln) and *finishing, inspection and packing*.

Candidates must be familiar with the history of crafts and design, the history of ceramics, art history and ethnology. They must command the concepts, materials, techniques, machinery and equipment used their sector. They must be capable of preliminary planning and of performing work to a high standard independently and on their own initiative. They must be able to draw up repair proposals and maintenance plans, be familiar with quality technology methods and comprehend the integrated productional, economic and technical whole formed by their workplace and the significance of their own work as part of that whole.

Those who have completed the qualification may work in the ceramics industry, small craft-oriented studios, in supervisory assignments and as independent entrepreneurs.

Further Qualification in Clothing

The requirements are identical to those of the equivalent qualification in Textiles and Clothing Technology.

Further Qualification for Engravers

The modules of the qualification are *theoretical vocational competence, design competence and competence required in production activities*.

Candidates must possess the knowledge of the history of styles and heraldry required in their occupation. They must be familiar with the properties and use of metals and precious metals and with the legislation governing the inspection and hallmarking of precious metals. They must be able to produce and interpret working diagrams and be familiar with lettering, typography and presentation techniques. The competence tests examine mastery of manual and machine engraving techniques. Candidates may demonstrate their specialist competence by participating in an optional competence test.

Those who have completed the qualification may work as engravers and in assignments related to the design, manufacture and repair of monograms, seals, seal stamps, printing plates and coats of arms. Under Decree 292/1977, independent manufacture of products may only be carried out by qualified people entitled to hallmark products.

Further Qualification for Gilders

The compulsory modules of the qualification are *vocational theory, design and gilding work*. One of the following modules must also be taken: *framing work, ornamental wood carving, glass gilding, metal gilding*.

Candidates must be able to identify the leaf metal products used, the compositions and characteristics of their manufacturing materials and the chemical properties of the chemicals used in the sector and know how to handle chemicals safely. They must be familiar with the coating and priming materials, manufacturing methods and techniques and the craft implements, machinery and equipment used in gilding work. They must command chromatics and stylistics and be familiar with the documentation methods employed by museums. They must be familiar with the history of gilding and possess basic knowledge of art history and of the history of various religions. They must be capable of selecting an economically and aesthetically suitable leaf metal for each application, of making hard-wearing gildings and of repairing and restoring old objects. They must be able to draw up cost estimates for customers. They must also command the skills and knowledge of their chosen module.

Those who have completed the qualification can work in gilding, framing, painting or restoration assignments for private companies, art museums and parishes

Further Qualification for Goldsmiths

The modules of the qualification are *theoretical vocational competence, design competence and competence required in production activities*.

Candidates must be familiar with the sector's materials, their properties and application opportunities and with the legislation governing the inspection and hallmarking of precious metals. They must be able to produce and interpret working diagrams used in the sector. The competence tests examine mastery of craft techniques and occupational safety in the sector, the

shaping, melting and precipitation of material, assembly using a variety of methods, the manufacture of locks, mechanisms, hinges and joints, skill at implanting gemstones, specialist goldsmithery techniques as well as skills and knowledge in surface treatment and finishing techniques. Candidates may demonstrate their own specialist skills by participating in an optional competence test.

Those who have completed the qualification may work as entrepreneur goldsmiths, industrial goldsmiths, gemstone implanters, studio goldsmiths, goldsmiths specialising in repairs and as designer goldsmiths. Under Decree 292/1977, independent manufacture of products may only be carried out by qualified people entitled to hallmark products.

Further Qualification for Glassblowers

The modules of the qualification are *glass melting and furnace supervision* (batch production, melting, replacement of crucibles, cooling), *glassblowing* (starting buttons of glass with prongs, post making, surface starting, ladling and blowing, rapping), *inspection and glass finishing* and *entrepreneurship, production and marketing*.

Candidates must command the tasks of junior glassblowers in their work. They must be able to use and service basic glassblowing tools and workshop machinery and to perform mould setting. They must possess basic knowledge of glass raw materials, various types of glass, mixing of raw materials, the various stages of the glass-melting process and cooling. They must be familiar with the stages and basic machinery of finishing. They must be familiar with the operation of a glassworks as a productional, technical and economic unit.

Those who have completed the qualification may work as members of glassblowing shops in a glassworks or glass studio.

Further Qualification for Gunsmiths

The modules of the qualification are *basics of gun production, knowledge of guns, gun technology and communication*.

Candidates must be capable of producing high-quality, aesthetic and finished guns. They must be familiar with the history and traditions of guns and their use. They must possess knowledge of the materials and implements used in the sector and the ability to use and service machinery, equipment and implements. They must be acquainted with the craft methods of their sector, such as craft techniques, engraving techniques and special techniques. They must command the basics of the theory and strength of materials, the ballistics of firearms, technical structures and the mathematical computation methods required in their work. They must possess the knowledge of business economics, legislation and marketing required for carrying out the occupation. They must also be capable of acquiring information from the international market and be familiar with the specialist vocabulary of their sector in a number of languages. They must command oral, written and visual communication.

Those who have completed the qualification may work as makers of guns and gun parts and in their repair, servicing and evaluation assignments.

Further Qualification In Handicrafts

The common modules of the qualification are *product design, product manufacturing and craft production and business*.

Candidates must be familiar with the craft tradition of their own field and know how to make use of this in design, production and marketing. Candidates must know how to use various information acquisition methods and follow developments in their field in order to maintain and develop their vocational skills.

Candidates must be aware of the significance of interaction skills and they must be equipped to function in a customer-focused manner and, where necessary, to co-operate with different stakeholders. They must be aware of legislation related to registered designs and copyrights, consumer rights and the duties and responsibilities of entrepreneurs. They must be able to make use of aesthetics and visual information in their design work.

Candidates must be familiar with the production process in their own field, including scheduling, materials, working methods, customer service, machinery and tools. They must know how to make products swiftly, safely and to a high quality standard. A product may also be a service or a work assignment. Candidates must be familiar with traditional production techniques. They must take environmental considerations into account in their work.

Candidates must be aware of the prerequisites for occupational or business activities. They must be able to consider the opportunities and risks involved in starting up and developing a business. They must know how to price their products or services. They must know their responsibilities relating to production, sales and marketing of products and services. They must be aware of their vocational competence and goal-oriented in terms of developing their competence.

Those who have completed the qualification may work as employees of crafts enterprises, or as self-employed people or entrepreneurs involved in professional and profitable crafts, such as art framing, doll making, rope making or art glass manufacturing.

Further Qualification In Interior Design

The qualification comprises five competence areas and candidates must take the modules within their chosen competence area. All candidates must take the *common vocational skills in interior design* module. Those who have chosen the competence area in soft furnishings and upholstery must take the *soft furnishings and upholstery* module. Those who have chosen the competence area in interior construction must take the *interior construction* module. Those who have chosen the competence area in interior surface treatments must take the *interior surface treatments* module. Those who have chosen the competence area in ship interior fitting must take the *ship interior fitting* module. Candidates choosing the competence area in furniture and fixtures must take the *furniture and fixtures* module. In addition, one of the following modules must be taken: *fair construction, styling, interior design sales* and *specialised technical skills in interior design*. It is also possible to incorporate the *entrepreneurship* module as part of the qualification.

Candidates must take the effects of space and lighting into account in interior design. They must be familiar with the field's basic concepts and types of materials and furniture and fixtures. They must know how to interpret and prepare construction drawings. They must know how to draw up agreements and other documents and to seek information independently. They must

work in a customer-focused manner and command marketing. They must be able to familiarise themselves with the special needs of space users. They must be familiar with architectural and interior design heritage.

Candidates who have chosen the soft furnishings and upholstery module must know how to interpret designers' working drawings and plan the work process. They must be able to choose correct materials and use appropriate tools and equipment safely. They must know how to make patterns for, size, cut and sew soft furnishings.

Those who have chosen the interior construction module must be able to take note of general building regulations and guidelines. They must be familiar with the most common partition and ceiling materials used in buildings, finished or semi-finished building components, supplies and coverings and they must know how to work these. They must know how to make and cover openings in load-bearing partitions. They must know how to lower ceilings. They must know how to dismantle and build lightweight partitions and casings and fit skirtings, windows and doors.

Those who have chosen the interior surface treatments module must be familiar with the materials and the most common tools and equipment used in interior surface treatment work. They must know how to use these in painting and varnishing treatments of wall, ceiling furniture and fixture surfaces and door and window structures. They must know how to perform surface treatments suitable for interior wall, ceiling, furniture and fixture surfaces and door and window structures, paying attention to occupational safety.

Those who have chosen the furniture and fixtures module must know how to design fixed and freestanding furniture for the chosen space and customer needs. They must be familiar with the types, codes and structures of furniture and fixtures. They must command different working phases and methods involved in assembling and fitting furniture and fixtures and manufacturing individual supplementary pieces.

Those who have chosen the ship interior fitting module must be familiar with the course of the ship interior design process in general terms from an architect's vision to working drawings. They must be able to choose and use interior design materials. They must know how to carry out decoration of ship interiors. They must be able to work in accordance with working drawings and instructions.

Those who have chosen the fair construction module must know how to plan their work on the basis of the designer's or customer's work instructions. They must be familiar with different types of fair structures and materials and prefabricated elements used in fair construction and know how to independently build simple elements for fair stands. They must know how to make use of prefabricated elements and fittings available for fair construction purposes.

Candidates who have chosen the styling module must know how to style flats and homes, i.e. to improve the interior decoration of a space for sale. They must be familiar with the most common interior surface materials and textiles. They must be able to determine and acquire the materials that they need. They must know how to use appropriate tools and machinery. They must know how to carry out planned measures according to the client's wishes.

Those who have chosen the interior design sales module must command personal sales work in stores relating to interior design and decoration. They must be familiar with products being sold and know how to present these to customers. They must know how to sell products and supplies that meet individual customers' interior decoration needs.

Candidates who have chosen the specialised technical skills in interior design module must know how to design complete or parts of interior decorations to be implemented using their

chosen technique. They must be familiar with the materials, tools, machinery and equipment used in their specialist area. Specialised techniques include decorative and special effect painting, plaster work, ornamental masonry, dyeing and patterning fabrics, frescoes and murals, lighting and audio technology, gilding, intarsia, ornamental wood carving, forging, felting, tiling and mosaic work, leather working techniques, glass work, decorative and art textiles, lighting fixtures, lampshades, traditional paints and wallpapers, model-building or some other specialised technique to be agreed separately.

Those who have chosen entrepreneurship must be able to assess their own potential and the operating conditions of business enterprises within their field. They must be familiar with the principles of the business world and know how to comply with the most important economic principles.

Further Qualification In Joinery

The common modules of the qualification are *common vocational skills in joinery* and *production economics and entrepreneurship in joinery*. One of the following modules must also be selected: *ornamental wood carving, intarsia, turning, art framing repairs and conservation of joinery products, manufacturing of joinery products, NC machining in joinery, CAD/CAM technology in joinery, sharp tool and equipment maintenance in joinery, machine line operation in joinery, form pressing, industrial joinery assembly and outfitting fitting of joinery products, door and window industry, stair production, parquet production and composite structures in joinery*. In addition, it is also possible to take the *entrepreneurship* module.

Candidates must be familiar with the manufacturing process of joinery products. They must know how to select materials for each application and be aware of the significance of drying wood. They must be familiar with basic joinery machinery and hand tools, machine auxiliary equipment and the use of these. They must be familiar with structures and joints used in joinery. They must be familiar with finishing and surface treatment of joinery products. They must be familiar with pneumatic and hydraulic applications used in the joinery industry and know how to use these.

Candidates must be familiar with the structure of the forest industry and its significance in terms of the Finnish national economy and the joinery industry. They must be familiar with risks and opportunities involved in setting up and developing joinery business operations. They must understand the significance of quality in terms of financial results and competitiveness. They must be familiar with the prerequisites of business co-operation and subcontracting. They must command interactive situations in working life. They must be able to work economically and efficiently. They must be familiar with environmental regulations and recommendations concerning the joinery industry.

Candidates must command the skills and knowledge required in their chosen optional module(s). They must be familiar with different product design styles in joinery and various materials as well as product assembly techniques. They must command the field's terminology and special vocabulary. They must be able to draw and read working diagrams. They must command the required equipment, machinery and machine lines and various techniques performed using these.

Those who have completed the qualification may work in the joinery or furniture industry or as independent entrepreneurs.

Further Qualification for Model-builders

The common modules of the qualification are *visualisation of shapes, surfaces and structures; knowledge of materials; use of model-building techniques and implements* and *communication skills*.

Candidates must be able to visualise three-dimensional shapes, pieces and spaces and their interrelationships, movements and transformations. They must possess extensive knowledge of different materials, command the characteristics associated with machining, joining and moulding them and be familiar with their resistance to chemicals, light, heat and water. They must be capable of employing a number of model-building techniques and methods and of using electrical manual machinery, hand tools, machine tools and template, mould and casting techniques. They must be able to use word-processing, two-dimensional drawing and three-dimensional modelling software and information networks. They must be familiar with the rules and precautions related to occupational safety and comply with them. They must command the planning and manufacturing documentation required in their sector and be able to read and draw up working diagrams. They must have a sufficient command of languages relevant to their work.

Those who have completed the qualification may work in industrial enterprises, design agencies and architect's offices, museums, research institutions, theatres and in their own business.

Further Qualification for Musical Instrument Makers

Candidates will select options as required in their chosen competence area.

The common modules for those choosing the competence area in plucked instrument making are *basic instrument making skills, instrument making* and *instrument repairs*. In addition, candidates are free to choose from the *specialised competence* and *entrepreneurship* modules.

The common modules for those choosing the competence area in string instrument making are *basic instrument making skills, instrument making* and *instrument repairs*. In addition, candidates are free to choose from the *specialised competence* and *entrepreneurship* modules.

The common modules for those choosing the competence area in accordions are *basic instrument making skills* and *instrument repairs*. In addition, one of the following modules must be chosen: *instrument making* or *specialised competence*. In addition, candidates may choose to take the *entrepreneurship* module.

The common modules for those choosing some other area of instrument making are *basic instrument making skills, instrument making* and *instrument repairs*. In addition, candidates are free to choose from the *specialised competence* and *entrepreneurship* modules.

Candidates must be familiar with the basic concepts, traditions and culture of musical instrument making. They must possess sufficient language skills and understand business economics and laws governing the field. They must possess sufficient communication skills and occupational ethics.

Candidates must know how to make one type of high-quality musical instrument from start to finish. They must understand working drawings and know how to make moulds and templates. They must be able to plan a smooth work process. They must be familiar with the materials, equipment and machinery used.

Candidates must be able to determine defects in instruments and choose repair methods and appropriate tools. They must know how to carry out servicing and repair tasks relating to the playability and adjustments of instruments in their competence area.

Candidates taking the specialised competence module must demonstrate in-depth command of their chosen specialised area of instrument making. They may take this module in order to supplement their performance in other modules. Specialised areas may include instrument electronics, microphone making, mother-of-pearl decoration, making instrument parts, surface treatment or decorative inlays.

Those who have chosen the entrepreneurship module must be familiar with their own entrepreneurial qualities and be aware of the requirements and obligations involved in entrepreneurship.

Those who have completed the qualification may work as employees or independent entrepreneurs in the musical instrument making field.

Further Qualification for Painters

The qualification requires acceptable completion of a total of four modules.

The common module of the qualification is *general skills for painters*. Depending on the specialisation area that they select, at least one of the following modules must be chosen: *new construction painting*, *building renovation painting* and *façade repair and painting*. Candidates may also select some of the following modules, as required: *wallpapering*, *spray painting for house-painters*, *floor coating*, *smoothing*, *ornamental decoration*, *fitting liquid water-proofing compounds*, *faux painting*, *façade plastering and patching*, *carpeting for painters*, *tiling for painters* and *restoration work*. In addition, it is also possible to select the *entrepreneurship* module.

Candidates must command the basic knowledge required in the occupational field. They must possess basic knowledge of the building materials that are most commonly painted and they must know how to make justifiable choices of surface treatment agents for these. They must be familiar with the machinery and equipment commonly used for house-painting and able to take action in problem and emergency situations related to these. They must be able to perform wallpapering, pretreatment, priming, smoothing, puttying, grinding, coating as well as painting and varnishing tasks independently. In addition, they must command the basic work assignments in their chosen specialisation area. They must be capable of using IT equipment and basic software and possess the language and communication skills required in the field. They must be able to work in a safe, economical and quality-conscious manner.

Those who have completed the qualification may work for painting and surface treatment companies and for equivalent units at industrial plants in assignments requiring vocational skills in the field.

Further Qualification for Restorers

The Further Qualification for Restorers comprises four specialisation areas: wooden structures, stone structures, surface treatments and metal structures. The qualification is completed once all the different modules, one common module (*basics of restoration*), one module from the

specialisation area (*restoration of wooden structures, restoration of stone structures, restoration of surface treatments or restoration of metal structures*) and the possible optional module (*entrepreneurship*) have been completed to an acceptable standard.

Those who have completed the Further Qualification for Restorers must be familiar with construction methods used in different eras in their specialisation area and the history of architecture and interior design, in order to acquire information about each specific restoration site (structures, materials, working methods). They are familiar with the principles of restoration, with the documentation and investigation methods used in restoration and with contacts and authorities relating to the field in terms of restoration sites.

In addition, those who have completed the qualification are familiar with materials typical of their specialisation area and with their characteristics in different conditions. Based on this knowledge, they are able to recognise damage to the site and to draw conclusions about the causes of damage. Based on damage surveys, they know how to acquire additional information and make suggestions for repairs in compliance with the principles of restoration.

Restorers repair old buildings and structures. They command traditional tasks of joiners, carpenters, bricklayers, plasterers, painters and sheet-metal workers.

Further Qualification for Romany Culture Instructors

The common modules of the qualification are *knowledge of the Romany culture and cultural information, functioning in working communities and customer guidance and official advice*. In addition, one of the following modules must also be selected: *instruction of small groups, organisation of Romany cultural events or exhibitions, Romany language and entrepreneurship*.

Candidates must know Romany culture from the inside and command the basics of the Romany language. They must be familiar with the key values, customs, traditions and history of the community. They must perceive Romany culture as being one of the Finnish cultures. They must recognise parties involved in and the principles of Finnish Romany policy and international Romany work as part of minority policy. They must know how to provide public information on the Romany language and culture and the minority status and explain these both orally and in writing. They must be able to use the Romany language in practical terms. They must be capable of positive interaction and co-operation with representatives of different cultures. They must know how to acquire, assess and use social information. They must know how to convey information about the Romany people's minority status, culture and language.

Candidates must be able to act responsibly in their work and working community. They must be capable of functioning in working groups and playing an active role in projects. They must know how to acquire information and draw up documents using information technology.

Candidates must be able to recognise factors supporting social inclusion and be familiar with means to promote integration. They must understand the significance of education and training to life skills and as a means of orienting to the future. They must be familiar with various services in general terms and know how to guide their customers to use these. They must know how to act in a customer-focused and co-operative manner, complying with the obligations of confidentiality. They must know how to assist customers in official services. They must be familiar with the basics of organisational activities.

Depending on their chosen modules, candidates must know how to plan and organise activities

for small groups, among other things. They must be familiar with various forms of Romany culture, arts and history. They must be able to participate in organising an event or an exhibition.

Candidates must be familiar with the history of the Romany language and its development work. They must command the Romany language syllabus of basic education and know how to instruct groups studying the Romany language.

Those who have chosen the entrepreneurship module must be able to assess their own entrepreneurial potential and clarify the steps involved in setting up a business and its operating requirements.

Those who have completed the qualification may work for local authorities and non-governmental organisations or as independent entrepreneurs as Romany language and culture instructors, in various advisory assignments or as project producers, depending on their chosen modules.

Further Qualification in Sami Crafts

All candidates must take the following qualification module: *common vocational skills in Sami crafts*.

One of the following modules must be chosen in the competence area in clothing: *traditional Sami costume and accessories* or *fur and leather working*. In addition, one of the following modules must also be taken: *Sami costume accessories*, *optional fur or leather product*, *braiding and band weaving*, *special techniques* and *weaving*.

Two of the following modules must be chosen in the competence area in handicraft production: *burl craft*, *woodworking*, *bone and horn craft*, *working with precious metals*, *rootwork*, *tools and transport equipment*. In addition, it is possible to take the following optional modules: *machine knitting*, *leather machine sewing*, *gemstone craft* and *entrepreneurship*. The qualification language is one of the Sami languages.

Candidates must be familiar with the traditions, materials and development of Sami crafts, *duodji*. They must be aware of the significance of Sami crafts to the Sami culture. They must understand the Sami conception of the environment and the diversity and usefulness of nature. They must be aware of the prerequisites of business activities and command customer service. They must be able to price and market their products and be familiar with the significance of product liability and product safety. They must be able to use new technologies for acquisition of information.

Depending on their chosen competence area and modules, candidates must know how to design and make products according to both traditional and modern designs. They must know the properties required of a specific material. They must be familiar with both traditional and modern materials and know how to acquire these. They must know how to pretreat materials as required, such as wood drying, leather barking, vegetable dyeing and felting. They must know how to finish products. They must be familiar with the machinery and equipment used and how to service these. They must be aware of the significance of ergonomics and occupational safety. They must know how to present their work visually and in writing in their chosen language and orally in the Sami language.

Those who have completed the qualification may work in design, manufacturing, advisory and marketing assignments related to Sami handicrafts.

Further Qualification for Silversmiths

The modules of the qualification are *theoretical vocational competence, design competence and competence required in production activities.*

Candidates must be familiar with the sector's materials, their properties and application opportunities and with the legislation on the inspection and hallmarking of precious metals. They must be able to produce and interpret working diagrams used in the field. The competence tests examine the mastery of craft techniques and occupational safety in the sector, the shaping, melting and mixing of materials, assembly using a variety of methods, the shaping of volume objects and command of level surfaces as well as skills and knowledge in surface treatment and finishing techniques. Candidates may demonstrate their own specialist competence by participating in an optional competence test.

Those who have completed the qualification may work in the sector industry or in silversmith's workshops in the manufacture, repair and production to order of silver objects. Under Decree 292/1977, independent manufacture of products may only be carried out by qualified people entitled to hallmark products.

Further Qualification for Stonecutters

The modules of the qualification are *knowledge of the properties of materials, command of machining methods and preparation of stone products, preparation and operational maintenance of implements and production, entrepreneurship and marketing.* Some of the following functional areas may form a specialisation area of the qualification as they are, some of them may form a specialisation area as combinations: object design and manufacture, furniture and interior design, architecture, environmental planning and milieu construction, sculpture and other visual arts, jewellery design.

Candidates must be familiar with the raw stone materials associated with their work, semi-finished products, processed products and the effects of different working methods on the stone and its surface. They must understand the effects of the thermal, acoustic, electrical, elasticity, porosity and strength properties and of the friction of the stone when manufacturing products. They must be familiar with the hand tools and equipment and machining and hand implements most commonly used in the stone industry. They must command traditional and modern methods of splitting and cutting stone and of the methods and tools relating to form treatment.

Candidates must design products using common design tools and techniques and make products combining stone with other materials. They must be able to price and market their products and be familiar with legislation related to the acquisition of stone material and with product liability and copyright legislation. They must be able to make tools related to the treatment of stone and be familiar with the machining parts of sharp tools and moulding tools and with the main principles of CNC technology. They must command the basics of entrepreneurship and marketing and have an adequate command of one foreign language, including the occupational terminology of the stone industry.

Those who have completed the qualification may work in stone sector businesses or as self-employed craftspeople.

Further Qualification in Textiles

The requirements are identical to those of the equivalent qualification in Textiles and Clothing Technology.

Further Qualification for Upholsterers

The common modules of the qualification are *basics of upholstery, machine sewing, planning of padding* and *cost accounting in upholstery*. One of the following specialisation modules must also be chosen: *industrial upholstery, traditional upholstery, vehicle upholstery*.

Candidates must know how to make patterns for furniture paddings and coverings as well as cutting plans of covering materials and be able to carry out furniture covering work. They must know how to use upholstery materials and tools appropriately, economically and in accordance with occupational safety requirements. They must be familiar with basic tools and materials used in wood and surface treatment and be capable of repairing the frames and treated surfaces of upholstered furniture. They must be aware of the history of furniture styles. They must command the use of different sewing machines used in upholstery and know how to perform their most common servicing measures and adjustments. They must know how to choose and sew the correct type of seam for each piece of upholstery, using appropriate needles and threads. When planning paddings, they must be able to take account of the tooling measures of materials and the operational requirements for each product and determine the correct dimensions. They must be capable of estimating and calculating the costs of upholstery-related work processes for tendering and cost accounting purposes.

Candidates who have chosen industrial upholstery must know how to pad and cover modern fully upholstered furniture appropriate for industrial production. Candidates who have chosen traditional upholstery must know how to pad and cover fully upholstered furniture using traditional craft methods and materials used in craft upholstery. Candidates who have chosen vehicle upholstery must know how to pad and cover vehicle seats, ceilings and interior door or wall surfaces, using modern materials and methods.

Those who have completed the qualification may work as upholsterers of industrial products, in traditional upholstery and restoration or as vehicle upholsterers, depending on their chosen specialisation area.

Specialist Qualification for Boat-builders

The qualification comprises *the competence required in the Further Qualification for Boat-builders* and the following three compulsory modules: *supervision, accounting and business economics, boat design*. In addition, it is also possible to take the *entrepreneurship* module.

Candidates must command the competence areas required in the Further Qualification for Boat-builders. They must be familiar with the practical supervision methods used in management work and be able to manage their own business enterprise or to work as supervisors in an enterprise. They must be familiar with employment security regulations, the social partners, the criteria for the determination of earned income and salary and with the obligations stipulated in

labour legislation. They must be familiar with different forms of enterprise and be able to draw up the foundation documents of an enterprise. They must be able to assess and develop their business idea and products and understand the significance of marketing, customer service and co-operation. They must be able to price their products so as to include a margin of contribution and to draw up cost estimates for customers. They must be familiar with the basics of bookkeeping and be able to use the most common key ratios of viability, liquidity and solvency in the financial control of their enterprise.

They must be familiar with the history of the boat-building sector and with the development of the Finnish and international boat-building cultures. They must be able to read and draw up technical drawings and be able to assess the properties of a boat, such as stability and seaworthiness, on the basis of line drawings. They must be familiar with the principles of hydrostatics and hydrodynamics and be able to perform the necessary calculations.

Those who have completed the qualification may work in boat-building shops and repair shops as employees and supervisors in assignments related to the manufacturing, servicing and repair of boats and as self-employed people.

Specialist Qualification for Blacksmiths

The Specialist Qualification for Blacksmiths comprises two compulsory modules. The qualification consists of two competence areas. Candidates choosing option 1, the competence area for master blacksmiths, must take *common vocational skills in specialist smithery* and *advanced preparation of forged products*. Candidates choosing option 2, the competence area for master knivesmiths, must take *common vocational skills in specialist smithery* and *advanced master knivesmith's craft*.

Candidates must understand craft-intensive business activities and be familiar with crafts. They must be able to provide orientation and instruction in smithery. They must be familiar with labour legislation. They must know how to design and document products and plan production. They must have extensive command of the properties of steel and non-ferrous metals and know how to work and heat-treat these. They must have extensive command of metalwork techniques. They must know how to use metalwork hand tools and machinery. They must be able to combine different materials in a single product. They must be familiar with occupational safety instructions and regulations and command co-operation and interaction skills. They must be capable of providing guidance and consultancy. They must know how to commercialise their work and price and market their products. They must be capable of contributing to quality improvement of products and functions within their own field. They must take environmental effects and the product life cycle into account.

Candidates who have chosen the advanced preparation of forged products module must know how to prepare the manufacturing process of forged products. They must know how to cut up blanks and command the heating process. They must know how to forge both manually and using machinery. They must command advanced riveting and bonding techniques and thermal and mechanical connections. They must know how to forge and heat-treat special tools. They must be able to choose the correct finishing and surface treatments according to the intended use of each product.

Candidates who have chosen the advanced master knivesmith's craft module must be able to design knife products and plan their production. They must be familiar with the history and modern design of knives and know how to design unique knives and series-produced items.

They must know how to heat metal and forge knife blades properly. They must know how to grind, polish and heat-treat knife blades. They must know how to prepare ferrules and perform advanced wood- and leatherwork relating to preparation of knives. They must be able to finish a technically and visually demanding combination of a knife and its sheath. They must command special techniques and demonstrate their master craftsmanship in their chosen areas. They must command some of the following techniques: preparation of laminated blades, preparation of damascened blades, blade etching, metal strip inlay, pattern cutting or printing of leather, sand- or wax-casting of ferrules, preparation of birch-bark handles, preparation of birch-bark or metal sheaths, or some other special technique.

Those who have selected the entrepreneurship module must be able to assess their own entrepreneurial potential and determine a business enterprise's operating conditions. They must know how to interpret financial accounts and key financial ratios.

Those who have completed the qualification may work as independent entrepreneurs, full-time or hourly paid teachers at adult education centres or crafts and design institutions, as part-time entrepreneurs, instructors or experts. The qualification provides capabilities for demanding restoration and conservation assignments, design and preparation of new products, sculpture, demanding repairs to metal objects, teaching and instruction.

Specialist Qualification in Ceramics

The common modules of the qualification are *production of pastes and glazes, competence in techniques, craft shaping techniques, glazing, decoration, firing techniques* and *finishing and packing*. The optional modules, which include different options, are *ceramics product development, ceramics production technology* and *ceramics studio work*.

Candidates must be familiar with the history of crafts and design, the history of ceramics art history and ethnology. They must command the concepts, materials, techniques, machinery and equipment used in their sector and the functional and technical modules of their own competence area and place of work. They must be equipped to take responsibility for the production process, development of quality, manufacture of special products and of product development relating to materials, products, methods and operating models. They must possess management and co-operation skills and be familiar with the occupational health and safety regulations of the sector.

Those who have completed the qualification may work in demanding assignments within the ceramics industry, in their own business or as employees.

Specialist Qualification in Clothing

The requirements are identical to those of the equivalent qualification in Textiles and Clothing Technology.

Specialist Qualification for Engravers

The compulsory modules of the qualification are *cultural competence, communication and documentation* and *a specialist field*. At least one of the following optional modules must also be taken: *design, entrepreneurship and marketing*.

Candidates must command the skills and knowledge required in the further qualification of their field. They must be familiar with the history and current state of the engraving field in Finland. In their work, they must be able to make use of the styles of different cultures and eras and of the history of style and of the links between the engraving field and the visual arts, history of graphics and customs.

Candidates must command drawing, photography and other communication skills so as to be capable of documenting and presenting their own work. They must be able to make a presentation about a product that they have designed by means of presentation graphics, layout models and prototypes. They must be capable of planning and implementing exhibitions, demonstrations and fair stands.

Candidates must be capable of working in their own specialist field in assignments calling for craft skills of a high standard and for a command of the processes and means of production and of planning and developing the working methods in their specialist field. They must also command the skills and knowledge of their chosen optional module.

Those who have completed the qualification may work as engravers and in assignments related to the design, manufacture and repair of monograms, seals, seal stamps, printing plates and coats of arms and in supervisory positions in these fields. Under Decree 292/1977, independent manufacture of products may only be carried out by qualified people entitled to hallmark products.

Specialist Qualification for Gilders

The modules of the qualification are *vocational theory, design and gilding work*. One of the following optional modules must also be taken: *ornamental wood carving, glass gilding, metal gilding, repair of gilded objects, gilding work on graphic works, design and implementation of commercial signs*.

Candidates must be able to identify the leaf metal products employed, the compositions, properties and manufacturing techniques of their materials of manufacture and the chemical properties and methods of acquisition of the chemicals used in the sector and be able to handle chemicals safely. They must be familiar with the coating and priming materials, manufacturing methods and techniques and the craft implements, machinery and equipment used in gilding work. They must possess extensive knowledge of the materials so as to be also able to resolve the priming and coating of new materials with leaf metal.

Candidates must command chromatics and stylistics and be familiar with the documentation methods employed by museums. They must be familiar with the history of gilding and possess the basic knowledge of art history and the history of various religions. They must be capable of selecting economically and aesthetically suitable leaf metal for their assignments and of restoring, repairing and priming old objects and their parts.

Candidates must know how to make duplication moulds of ornamental parts and command the techniques of fastening ornamental parts. They must know how to clean and service coated objects. They must be able to draw up cost calculations for customers and to provide them with written tenders, including price estimates. They must also command the skills and knowledge of their chosen optional module.

Those who have completed the qualification may work in gilding, framing, painting or restoration assignments for private companies, art museums and churches.

Specialist Qualification for Goldsmiths

The compulsory modules of the qualification are *cultural competence, communication and documentation* and *a specialist field*. At least one of the following optional modules must also be taken: *design, entrepreneurship and marketing*.

Candidates must command the skills and knowledge required in the further qualification of their field. They must be familiar with the history and current state of the goldsmithery field in Finland. In their work, they must be able to make use of the styles of different cultures and eras and of the history of style and of the links between goldsmithery and the visual arts, fashion and customs. They must command drawing, photography and other communication skills so as to be capable of documenting and presenting their own work. They must be able to make a presentation about a product that they have designed by means of presentation graphics, layout models and prototypes. They must be capable of planning and implementing exhibitions, demonstrations and fair stands. They must be capable of working in their own specialist field in assignments calling for craft skills of a high standard and for a command of the processes and means of production and of planning and developing the working methods in their specialist field. They must also command the skills and knowledge of their chosen optional module.

Those who have completed the qualification may work as self-employed goldsmiths, industrial goldsmiths, gemstone implanters, studio goldsmiths, goldsmith specialising in repairs or as designer goldsmiths and in supervisory positions in these fields. Under Decree 292/1977, independent manufacture of products may only be carried out by qualified people entitled to hallmark products.

Specialist Qualification for Glassblowers

The common modules of the qualification are *manufacture of products, product design and product marketing, management and entrepreneurship* and *supplementary techniques*. Of the supplementary techniques, *oral blowing of jugs* is compulsory for all candidates.

Candidates must be able to use and service basic blowing tools and workshop machinery and to perform mould-setting. They must possess basic knowledge of glass raw materials, various types of glass, mixing of the raw materials, the various stages of the glass-melting process and of cooling. They must be familiar with the operations of a glassworks as a production, technical and economic unit. They must be familiar with the Finnish and international product trade and be capable of planning and implementing product marketing.

Candidates must be familiar with the methods of both craft and industrial product design and also be able to combine other materials with glass. They must be familiar with various forms of enterprise and with the measures required for setting up a business enterprise, with the basics of business administration and marketing and with product liability and copyright legislation.

Those who have completed the qualification may work as members of glassblowing shops within the utility and art glass industries.

Specialist Qualification for Gunsmiths

The modules of the qualification are *gun design, management and entrepreneurship* and *specialisation*

products (such as a specific gun type or working method differing from craft manufacture, or gun repairs).

Candidates must be familiar with the product development process of their sector and with its various work stages and methods. They must command gun design, chromatics and the theory of perspective and be capable of designing guns and of producing working diagrams and various presentation pictures. They must be familiar with the products generally seen and manufactured in the sector, be able to perform the calculations required in the dimensioning of guns and gun accessories and be capable of drawing up cost estimates for customers.

They must be familiar with entrepreneurship, budgeting, taxation, legislation, copyrights and consumer protection. They must be able to direct and guide other people's work. They must be equipped to perform continuous monitoring of their sector by means of good knowledge of languages, for example.

Those who have completed the qualification may work in managerial and supervisory positions in gun sector companies.

Specialist Qualification In Interior Design

The requirements of the competence-based qualification are currently being prepared.

Specialist Qualification In Joinery

The common modules of the qualification are *common vocational skills in specialist joinery and entrepreneurship and workplace instruction in joinery*.

The specialisation areas of the qualification are specialist joiner or specialist industrial joiner. One module must be selected from either specialisation area. Specialist joiner: *advanced small-scale craft joinery industry* or *advanced manufacturing of joinery products*. Specialist industrial joiner: *advanced CAD/CAM technology in joinery, advanced sharp tool and equipment maintenance in joinery, advanced production line operation in joinery, advanced joinery industry, advanced fitting of joinery products, advanced composite structures in joinery*. In addition, candidates specialising in either area may choose to take the *entrepreneurship* module.

Candidates must command advanced manufacturing processes of wood products. They must be able to draw working diagrams and use drawing standards. They must know how to prepare work instructions, plan different working phases and calculate costs. They must be capable of supervising production processes and produce related reports and documentation.

Candidates must have extensive command of joinery materials. They must know how to apply structures and joints. They must be able to choose the correct methods, substances and materials for finishing and surface treatment of products. They must know how to use joinery hand tools and machinery as well as machine auxiliary equipment. They must be familiar with woodworking machine tool cutters and know how to use these. They must be familiar with pneumatic and hydraulic applications used in the joinery industry.

Candidates must be familiar with a business enterprise's economic process as a whole and the effects of various economic changes on business finances and profitability. They must be

capable of functioning as induction and development instructors in their own workplace. They must be capable of participating in the entire enterprise's quality improvement. They must command labour legislation and be familiar with occupational health and safety legislation, understanding its significance as a preventive guideline, and comply with occupational safety regulations. They must take account of the effects of their actions on the environment and be familiar with the product life-cycle approach.

Candidates must command the special requirements of the module chosen from their own specialisation area.

Those who have completed the qualification are able to design and make joinery products requiring advanced manual skills.

Specialist Qualification for Model-builders

The common modules of the qualification are *visualisation of shapes, surfaces and structures; knowledge of materials; use of model-building techniques and implements* and *communication skills*. Two of the following three modules must also be taken: *design skills; management and entrepreneurship; command of the specialisation area* (industrial design and product development; environmental planning and architecture; museums, exhibitions and teaching; others, such as science, virtual modelling on an information network, television, the cinema, theatre).

Candidates must be able to visualise three-dimensional shapes, pieces and spaces and their inter-relationships, movements and changes. They must possess extensive knowledge of different materials and command their characteristics relating to machining, joining and forming and be familiar with their resistance to chemicals, light, heat and water. They must be capable of using a variety of model-building techniques and methods and electrical hand machines, hand tools, machine tools and pattern, mould and casting techniques.

They must be able to use word-processing, two-dimensional drawing and three-dimensional modelling software and information networks. They must be familiar with the regulations and precautions relating to occupational safety and comply with them. They must command the planning and manufacturing documentation required in their field and be able to read and draw up working diagrams. They must possess sufficient language skills as required for their work.

According to their options, they must also command the objectives, work stages and methods of the product development process in their own sector and be able to design models suitable for various purposes and/or forms of enterprise, the measures required for setting up a business enterprise, business administration, marketing and labour legislation and/or the skills and knowledge of their specialisation area.

Those who have completed the qualification may work in industrial enterprises, design and architectural agencies, museums, research institutions, theatres and in their own business enterprise.

Specialist Qualification for Musical Instrument Builders

The qualification comprises four competence areas: competence area in plucked instrument making, competence area in string instrument making, competence area in accordions and some other area of instrument making. Candidates must choose one of the competence areas and take the modules required within the area. The common modules taken in each competence area are *instrument design* and *business and management in musical instrument making*. In addition, one

of the following modules must be chosen: *instrument making* or *instrument repairs*. In addition, candidates choosing some other area of instrument making may take the *entrepreneurship* module.

Candidates must be able to plan the instrument making or repair process from start to finish. They must have in-depth knowledge of the basic concepts, traditions and culture of musical instrument making. They must have sufficient knowledge of the product development process in the musical instrument making field. They must be able to plan the production of their instruments. They must be able to prepare and interpret working drawings. They must possess sufficient language and communication skills.

Candidates must be capable of business activities and management. They must be aware of their own entrepreneurial potential and be familiar with laws governing their field. They must understand business economics and financial administration. They must know how to price and market their work. They must pay attention to the well-being of their working community.

Candidates must know how to repair, make and service musical instruments safely and to a high quality standard. They must know how to plan a smooth and justified work process, also being able to teach it to other people. They must be familiar with the materials, equipment and machinery used.

Those who have chosen the entrepreneurship module must be familiar with their own entrepreneurial qualities and be aware of the requirements and obligations involved in entrepreneurship.

Those who have completed the qualification may work in highly skilled assignments, managerial positions or as independent entrepreneurs in the musical instrument making field.

Specialist Qualification for Painters

The common module of the qualification is *general skills for specialist painters*. Depending on the specialisation area that they select, at least one of the following modules must be chosen: *new construction painting, building renovation painting, façade repair and painting*. Depending on the specialisation above, at least one of the following modules must also be selected: *advanced house-painting, façade renovation and organisation and supervision of work*. Candidates may also select some of the following modules, as required: *profitability and cost management in the painting field, operational planning, restoration painting of buildings, advanced faux painting, gilding, plaster decoration, furniture restoration, special wallpapering and classical decorative painting*. In addition, it is possible to take the optional *entrepreneurship* module.

The qualification requires acceptable completion of a total of five modules.

Candidates who have chosen the *organisation and supervision of work* module together with *profitability and cost management in the painting field* and *operational planning* will receive a note on their certificate about specialisation in work supervision.

Candidates must be able to perform and supervise house-painting assignments. They must be familiar with the most common materials used in painting and know how to handle and store these properly. They must be able to choose the correct surface treatment techniques and materials. They must know how to handle and service machinery, equipment and tools used in the field. They must be capable of co-operating with different parties involved in construction projects and as team leaders.

In their specialisation area, candidates must be capable of high-quality craftsmanship and

renovation, restoration or special products painting that require specialised competence. According to their choices, they may also demonstrate supervisory skills and extensive basic knowledge of the painting field and business operations.

Candidates must be able to plan work assignments and priming measures and painting materials required for different sites in an independent and customer-focused manner. They must be able to perform their assignments economically, smoothly and in compliance with safety regulations.

Those who have completed the qualification may work in positions demanding very good vocational skills, in supervisory assignments in the field or as independent entrepreneurs.

Specialist Qualification for Restorers

The Specialist Qualification for Restorers comprises four specialisation areas: wooden structures, stone structures, surface treatments and metal structures. The qualification is completed once all three modules of the qualification (*documentation, restoration and entrepreneurship*) have been completed to an acceptable standard.

Those who have completed the Specialist Qualification for Restorers must be familiar with the principles of restoration, with construction methods used in different eras in their specialisation area and with the history of architecture and interior design, in order to be able to acquire information about each specific restoration site (structures, materials, working methods). They are familiar with the course of restoration projects and are able to interpret commercial and technical project documentation. They know how to draw up documentation about the different phases of a restoration assignment according to their specialisation area and in compliance with instructions provided by the Department of Monuments and Sites of the National Board of Antiquities. For this purpose, they are required to command drawing, photography and other communication skills.

Those who have completed the qualification command the properties, damage processes and damage prevention of materials used in their specialisation area. They know how to repair or reinforce damaged structures and make copies of such structures without harming the originals. They co-operate with skilled construction workers and are able to function in supervisory positions. They command the principles of restoration so as to be able to implement and recommend repair techniques that preserve the site's historical value. Where necessary, they know how to disassemble and reassemble structures without destroying old materials.

Those who have completed the qualification are familiar with the principles of business operations and key statutes relating to construction, in order to be able to function as entrepreneurs in the field.

Master restorers repair old buildings and structures. They command traditional tasks of joiners, carpenters, bricklayers, plasterers, painters and sheet-metal workers.

Specialist Qualification for Romany Culture Instructors

The common module of the qualification is *promotion of the status and culture of Romany people*. In addition, one of the following modules must also be selected: *demanding specialist assignments of Romany Culture Instructors and international Romany work*, *advanced Romany language skills for Romany Culture Instructors*, *administration and implementation of Romany or multicultural projects or implemen-*

tation of Romany cultural productions. In addition, all candidates may also select the *entrepreneurship* module.

Candidates must have in-depth knowledge of Romany people's culture and history and the legal basis of their minority status. They must be familiar with the workings of society and the political system. They must be familiar with the status of the Romany language and its significance to the Romany community.

Depending on their chosen module, candidates must be familiar with major national and international organisations promoting the status of minorities, among other things. They must be familiar with means of promoting and influencing minority issues. They must be able to assume responsibility for demanding specialist assignments. They must be familiar with international Romany work and know how to function in an international operating environment. They must be familiar with the procedures and principles of multilateral co-operation.

Candidates must be familiar with legislation governing minority languages. They must be familiar with research into the Romany language. They must be able to express themselves fluently in the Romany language. They must be capable of instructing language learning groups at different levels. They must be familiar with Romany-language teaching materials available. They must command the necessary counselling skills and be capable of providing individual instruction.

Candidates must know how to assess the suitability of a project for promoting and improving the status, language or culture of Romany people or other minorities. They must be able to work in responsible project assignments. They must know how to seek co-operation partners and funding sources. They must know how to network and co-ordinate and report on a project. They must know how to brainstorm, design and implement a production relating to Romany culture and arts.

Those who have completed the qualification may work in national and international specialist assignments or projects within public or non-governmental organisations.

Specialist Qualification in Sami Crafts

All candidates must take the following qualification module: *common vocational skills in the Specialist Qualification in Sami Crafts*. In addition, one of the following modules must also be chosen in the competence area in clothing: *traditional Sami costume and accessories* or *fur and leather working*. One of the following modules must be chosen in the competence area in handicraft production: *burl and wood working*, *bone and horn craft*, *working with precious metals*, *transport equipment* and *tools*. In addition, it is also possible to take the *fur products* and *entrepreneurship* modules. The qualification language is one of the Sami languages.

Candidates must be familiar with the field of manual-intensive Sami crafts, *duodji*, its values and significance. They must also be familiar with the basics of entrepreneurship. They must be capable of providing orientation and instruction in the field, being familiar with its training provision and phases of orientation. They must be familiar with labour legislation, safety instructions and occupational health and safety law. They must be capable of workplace instruction and command supervisory skills. They must know how to obtain materials and tools.

Candidates must possess good interaction skills. They must know how to create customer and co-operation networks. They must know how to commercialise, price and market *duodji*

handicrafts. They must be able to acquire information about financing and business taxation. They must be familiar with consumer legislation and participate in quality improvement in accordance with the requirements of the Sámi Duodji label, for example. They must be able to take environmental effects into account and be familiar with the product life-cycle approach.

Candidates must be able to design traditional or modern products. They must know how to plan working phases and production. They must be able to choose and treat materials. Depending on their chosen competence area and modules, candidates must know how to make traditional Sami costumes, accessories, woven belts, woven band products, footwear, fur products or wood and burl products, bone and horn work, precious metal products, sleds, boats and craft tools, among other things. They must know how to use and service the machinery and equipment that they need. They must know how to carry out finishing work. They must be capable of presenting their work visually and in writing. They must be able to report on the process, draw up work instructions and use information technology for this purpose.

Those who have completed the qualification may work in highly skilled design, manufacturing, advisory and marketing assignments related to handicrafts based on Sami culture.

Specialist Qualification for Silversmiths

The compulsory modules of the qualification are *cultural competence, communication and documentation and a specialist field*. At least one of the following optional modules must also be taken: *design, entrepreneurship and marketing*.

Candidates must command the skills and knowledge required in the further qualification of their field. They must be familiar with the history and current state of the silversmithing field in Finland. In their work, they must be able to make use of the styles of different cultures and eras and of the links between the silversmithing field and the visual arts, fashion and customs. They must be familiar with the history of style and with interior design. They must command drawing, photography and other communication skills so as to be capable of documenting and presenting their own work.

Candidates must be able to make a presentation about a silversmith's product that they have designed by means of presentation graphics, layout models and prototypes. They must be capable of planning and implementing exhibitions, demonstrations and fair stands. They must be capable of working in their own specialist field in assignments calling for craft skills of a high standard and for a command of the processes and means of production and of planning and developing the working methods in their specialist field. They must also command the skills and knowledge of their chosen optional module.

Those who have completed the qualification may work in the manufacture and repair of silver objects within the industry or in silversmith's workshops and in supervisory positions in these fields. Under Decree 292/1977, independent manufacture of the products of the field may only be carried out by qualified people entitled to hallmark products.

Specialist Qualification for Stonecutters

The common modules of the qualification are *knowledge and testing of the properties of materials, product design and product marketing, production planning and manufacture of stone products and management and entrepreneurship*. The specialisation areas are *object design and production* (also including art

handicrafts), *furnishing and interior design, architecture, environmental planning and milieu construction, sculpture and other visual arts and jewellery design.*

Candidates must be familiar with the key stone materials, semi-finished products and processed products and with the potential for combining other materials such as wood, metal, glass and plastic with stone. They must be able to design and manufacture high-quality stone products that require a high standard of craft skills and to use and service the machinery, equipment, implements and hand tools used in the field. They must be capable of combining a theoretical knowledge base and practical application with individual product manufacture or serial production. They must be familiar with legislation governing copyrights, protection of designs and product liability and with the history of crafts and design and of the stone sector, art history, ethnology and with the history of the cultures of the most important market areas. They must speak the language(s) of the market area adequately. They must be familiar with the process of setting up a business enterprise, business administration, profitability calculation and marketing.

Those who have completed the qualification may work in stone sector businesses or as self-employed artisans.

Specialist Qualification in Textiles

The requirements are identical to those of the equivalent qualification in Textiles and Clothing Technology.

Specialist Qualification for Upholsterers

The common modules of the qualification are *basics of upholstery, machine sewing, planning of padding and cost accounting in upholstery*. One of the following specialisation modules must also be chosen: *advanced industrial upholstery, advanced traditional upholstery, advanced vehicle upholstery*. In addition, one of the following modules must also be taken: *business activities, supervisory work in upholstery and workplace instructor skills*.

Candidates must know how to make patterns for furniture paddings and coverings as well as cutting plans of covering materials and be able to carry out furniture covering work. They must know how to use upholstery materials and tools appropriately, economically and in accordance with occupational safety requirements. They must be familiar with basic tools and materials used in wood and surface treatment and be capable of repairing the frames and treated surfaces of upholstered furniture. They must be aware of the history of furniture styles. They must command the use of different sewing machines used in upholstery and know how to perform their most common servicing measures and adjustments. They must know how to choose and sew the correct type of seam for each piece of upholstery, using appropriate needles and threads. When planning paddings, they must be able to take account of the tooling measures of materials and the operational requirements for each product and determine the correct dimensions. They must be capable of estimating and calculating the costs of upholstery-related work processes for tendering and cost accounting purposes. In addition, they must command the skills and knowledge of their chosen specialisation and alternative modules.

Candidates who have chosen advanced industrial upholstery must know how to pad and cover modern fully upholstered furniture with fluting or deep buttoning, which is appropriate

for industrial production. Candidates who have chosen advanced traditional upholstery must know how to pad and cover traditionally crafted furniture that has elastic seat edges, sprung armrests and deep backrest buttoning. Candidates who have chosen advanced vehicle upholstery must know how to pad and cover vehicle seats, ceilings and interior door and wall surfaces, using both traditional craft methods and modern methods.

Those who have completed the qualification may work in advanced industrial, traditional or vehicle upholstery assignments, depending on their specialisation area.

COMMUNICATIONS AND VISUAL ARTS

VOCATIONAL QUALIFICATIONS

- Vocational Qualification in Audiovisual Communication
- Vocational Qualification in Visual Expression

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification in Audiovisual Communication
- Further Qualification in Information and Library Services
- Further Qualification in Photography

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification in Audiovisual Communication
- Specialist Qualification in Photography

Vocational Qualification in Audiovisual Communication

The common module of the qualification is *basic audiovisual communication skills*. Four of the following optional modules must also be taken, at least two of which must be from the same group: *video, television and cinematic expression, video, television and cinematic technology, video, television and cinematic work; sound expression, audio technology, audio work; photographic production, photographic development, image processing; lighting expression, lighting technology, lighting work; multimedia expression, multimedia technology, multimedia production; expression in graphic communication, graphic communication technology and production; production management, production economics and entrepreneurship, show production technology*. The qualification title is Media Assistant.

Candidates must know how to apply different opportunities and means of expression as well as the aesthetic and content-related objectives of different stylistic tendencies when creating communication products. They must be capable of recognising the different style periods of art history in audiovisual art. They must be familiar with the key principles of colours, typography and visual composition. They must know how to take, develop and process photographs. They must command simple video photography and editing of film material. They must know how to record sound in indoor and outdoor conditions. They must know how to apply the basics of dramaturgy and to use images, light and sound together.

They must be capable of producing and editing a basic sound recording of high technical quality. They must know how to use lighting techniques required by different forms of production. They must understand production management as a whole and be familiar with the field's production methods, equipment, techniques and forms. They must be capable of planning a project and drawing up its working plan, schedule and cost estimate.

They must be able to analyse the content, supply and consumption of mass communication. They must be capable of expressing themselves in their native language and in English both orally and in writing. They must know how to use the application software in the field and to independently implement a simple web publication. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification may work as assistants in the planning, preparation, production and marketing of audiovisual communication products.

Vocational Qualification in Visual Expression

The compulsory modules of the qualification are *basic visual expression skills*, *aesthetic competence* and *visual competence*. One of the following optional modules must also be taken: *graphic design studies*, *visual and media arts studies*, *photographic studies*.

Candidates must be familiar with different branches of visual expression and their working methods. They must know how to use the essential tools and working methods of the field as well as traditional and modern techniques and approaches. They must be familiar with the history of the field, the roots and developments of Pan-European philosophy of aesthetics as well as with the cultural history, aesthetics and applications of different branches of visual expression. They must be capable of distinguishing between different styles and stylistic tendencies. In their expression, they must know how to use their observations and interpretations of the visual environment.

When working, they must be capable of applying factors influencing the design and environment of visual, colour, form and spatial composition. They must be able to use hand-eye co-ordination in a methodical and creative manner. They must be capable of observing and interpreting visual and product expression and of using different methods of image analysis. They must know how to independently create a piece of high-quality work, using the basic methods of visual expression and their own creative expression skills. They must know how to use the tools and equipment provided by modern technology.

They must possess the necessary skills in information and communications technology as well as in the acquisition and dissemination of information. They must be familiar with the essential legislation, contractual systems and copyrights of the field. In addition, they must command the skills and knowledge of their chosen competence area.

Those who have completed the qualification possess extensive skills to function in the fields of communication and visual arts in graphic design, visual and media arts or photographic assignments.

Further Qualification in Audiovisual Communication

Candidates must select one competence area and take all three modules.

The modules of the **competence area in editing** are *design and expression in editing*, *working methods and equipment in editing* and *production processes and environments in editing*.

The modules of the **competence area in publication graphics** are *design and expression in publication graphics*, *working methods and equipment in publication graphics* and *production processes and environments in publication graphics*.

The modules of the **competence area in filming and lighting** are *design and expression in filming and lighting*, *working methods and equipment in filming and lighting* and *production processes and environments in filming and lighting*.

The modules of the **competence area in media work** are *design and expression in media work*, *working methods and equipment in media work* and *production processes and environments in media work*.

The modules of the **competence area in radio work** are *design and expression in radio work*,

working methods and equipment in radio work and production processes and environments in radio work.

The modules of the **competence area in production and project management** are *design and expression in production, working methods and equipment in production and production processes and environments in production.*

The modules of the **competence area in network communication** are *design and expression in network communication, working methods and equipment in network communication and production processes and environments in network communication.*

The modules of the **competence area in audio work** are *design and expression in audio work, working methods and equipment in audio work and production processes and environments in audio work.*

In addition, it is also possible to incorporate the optional *entrepreneurship* module within each qualification.

Candidates must be familiar with the genres, key working methods and expressive means of audiovisual communication. They must know how to work in an audiovisual production environment and use one of the common professional devices and information systems. They must command the English language as required in their occupation. They must know how to plan their work and work independently but as part of production. They must be able to take cost estimates into account.

In addition, candidates taking the competence area in editing must also command areas such as expressive means and methods relating to image and sound post-production.

In terms of publication graphics, candidates must know how to use various means of visual expression. They must be familiar with the means and effects of colour, light and typographic expression.

Candidates taking the competence area in filming and lighting must command expressive means and techniques relating to filming and lighting.

Candidates taking media work must command areas such as oral and written expression required in television work as well as public performance skills. They must know how to carry out interviews and host TV broadcasts, where necessary. They must be familiar with contracts and copyrights related to domestic AV production.

Candidates taking the competence area in radio work must command oral and written expression and narration typical of radio broadcasting. They must be familiar with the basics of radio journalism and know how to carry out interviews. They must be aware of the basics of broadcast management.

Within the competence area in production and project management, candidates must be able to recognise a feasible production technology plan.

Candidates taking the competence area in network communication must command areas such as the different stages of the scripting process for digital media. They must know how to take the basics of interface, interaction and usability design and the differences between storage and distribution formats into account in design work.

Candidates taking the competence area in audio work must be familiar with the styles and uses of music, among other things. They must be capable of analysing the content of audio recordings.

Those who have completed the qualification may, depending on their specialisation, work in various assignments within AV post-production companies, production companies, advertising agencies, media workshops, press and publishing houses, music, film, television or multimedia

companies and within communications departments of companies or other organisations, or as independent entrepreneurs.

Further Qualification in Information and Library Services

The common module of the qualification is *command of information and library work*. In addition, candidates must take one compulsory module from their own competence area. The module of the competence area in general information and library services is *provision of general information and library services*. The module of the competence area in information and library services in learning environments is *provision of information and library services in learning environments*. The module of the competence area in scientific and specialist information and library services is *provision of information and library services for science, research and specialist fields*.

In addition, all candidates may also take the *entrepreneurship* module.

Candidates must be able to make use of the library network and other operating environments. They must know how to use and apply information and communications technologies. They must be able to work within an organisation's service process. They must be able to function as responsible members of their own working community.

Candidates must be able to work within their organisation's materials and information management process. They must command acquisition and order processes as well as storage and removal practices. They must know how to prepare materials for use and update, maintain and repair materials. They must command acquisition and ordering processes. They must know how to search for information and how to guide customers searching for information.

Candidates must know how to manage customer relationships. They must know how to carry out information and marketing measures when establishing and creating customer relationships. They must know how to provide customer-focused, competent services.

Those who have completed the qualification may work in public libraries or information services, school and other educational libraries and learning environments, in scientific libraries or in information and library services in specialist and corporate libraries.

Further Qualification in Photography

The common modules of the qualification are *working in a studio*, *working on a location shoot*, *digital workflow* and *planning and commercial skills*.

Candidates must be able to anticipate, schedule and plan their work economically. They must know how to relate their own work to structures and networks in the communications field. They must understand occupational requirements and business structures. They must command customer service. They must possess sufficient language skills, work motivation and the ability to acquire information. They must be very familiar with culture.

Candidates must be capable of producing appropriate photographs using different means. They must understand the visual elements and communicative significance of photographs. They must command colours and colour temperatures. They must be capable of lighting the space correctly. They must understand expressive and technical quality requirements.

Candidates must know how to use studio lighting and photographic equipment and to choose and design lighting. They must be able to select suitable materials and working methods.

They must know how to record, process, transfer and print digital photographic data professionally. They must command the publication criteria of digital pictures. They must be capable of adopting new recording media and working methods.

Candidates must know how to use various cameras and objectives. They must know how to perform calculations relating to the use of objectives. They must know how to use different types of filters, lighting and measuring equipment and other equipment used in photography. They must command the basics of computer use. They must know how to use equipment relating to digital image processing, recording, printing and transfer.

Candidates must be aware of the legal provisions relating to their own field. They must command technical requirements and procedures relating to publication of photographs. They must be familiar with marketing, advertising, publishing and layout practices. They must be familiar with employment contracts and taxation practices. They must be familiar with different forms of enterprise and be capable of pricing their work profitably.

Those who have completed the qualification may work as independent photographers or as employees in their chosen specialisation area.

Specialist Qualification in Audiovisual Communication

Candidates must select one competence area and take all three modules.

The modules of the **competence area in editing** are *design and expression in editing, working methods and equipment in editing* and *production processes and environments in editing*.

The modules of the **competence area in publication graphics** are *design and expression in publication graphics, working methods and equipment in publication graphics* and *production processes and environments in publication graphics*.

The modules of the **competence area in filming and lighting** are *design and expression in filming and lighting, working methods and equipment in filming and lighting* and *production processes and environments in filming and lighting*.

The modules of the **competence area in scripting and concept design** are *design and expression in scripting and concept design, working methods and equipment in scripting and concept design* and *production processes and environments in scripting and concept design*.

The modules of the **competence area in direction** are *design and expression in direction, working methods and equipment in direction* and *production processes and environments in direction*.

The modules of the **competence area in radio work** are *design and expression in radio work, working methods and equipment in radio work* and *production processes and environments in radio work*.

The modules of the **competence area in production** and *project management* are *design and expression in production, working methods and equipment in production* and *production processes and environments in production*.

The modules of the **competence area in network communication** are *design and expression in network communication, working methods and equipment in network communication* and *production processes and environments in network communication*.

The modules of the **competence area in virtualisation** are *design and expression in virtualisation, working methods and equipment in virtualisation* and *production processes and environments in virtualisation*.

The modules of the **competence area in audio work** are *design and expression in audio work, working methods and equipment in audio work* and *production processes and environments in audio work*.

In addition, it is also possible to incorporate the optional *entrepreneurship* module within each qualification.

Candidates must be familiar with the genres, key working methods and expressive means of audiovisual communication. They must know how to work in an audiovisual production environment and use one of the common professional devices and information systems. They must command the English language as required in their occupation. They must know how to plan their work and work independently but as part of production. They must be able to take cost estimates into account. They must know how to provide staff with orientation and instruction and assess their own and other people's work. Where necessary, they must be able to work as supervisors in audiovisual production environments.

In addition, candidates taking the competence area in editing must also command areas such as expressive means and methods relating to image and sound editing.

In terms of publication graphics, candidates must know how to use various means of visual expression. They must be familiar with the means and effects of colour, light and typographic expression.

Candidates taking the competence area in filming and lighting must command expressive means and techniques relating to filming and lighting.

Candidates taking the competence area in scripting and concept design must be familiar with production of digital communication products and command the concept design and script production processes, being able to apply this knowledge in their work.

Candidates taking the competence area in direction must be familiar with the objectives, techniques and working methods used in various filming, recording and post-production processes.

Candidates taking the competence area in radio work must command oral and written expression and narration typical of radio broadcasting. They must be familiar with the basics of radio journalism and know how to carry out interviews. They must be aware of the basics of broadcast management.

Within the competence area in production and project management, candidates must be able to recognise a feasible production technology plan.

Candidates taking the competence area in network communication must command areas such as the different stages of the scripting process for digital media. They must know how to take the basics of interface, interaction and usability design and the differences between storage and distribution formats into account in design.

Candidates taking the competence area in virtualisation must command, among other things, the basics of content design. They must command the differences between various publication media and storage and distribution formats. They must be familiar with the social meanings of media activities.

Candidates taking the competence area in audio work must be familiar with the styles and uses of music, among other things. They must be capable of analysing the content of audio recordings.

Those who have completed the qualification may, depending on their specialisation, work in various responsible assignments within AV post-production companies, production companies, advertising agencies, media workshops, press and publishing houses, music, film, television or multimedia companies and within communications departments of companies or other organisations, or as independent entrepreneurs.

Specialist Qualification in Photography

Candidates must select the modules included in their competence area. The modules of the competence area in press photography are *command of photojournalism* and *command of photo-reportage*. In the competence area in nature photography, the modules are *command of nature photography* and *command of a specialist area of nature photography*. The modules of the competence area in advertising photography are *command of advertising photography* and *command of a specialist area of advertising photography*. In the competence area in portrait photography, the modules are *command of portrait photography* and *command of a specialist area of portrait photography*. In addition, those who have not completed the Further Qualification in Photography must take the *basic skills of a professional photographer* module.

Candidates must have extensive command of the field of photography. They must know how to photograph in a personal and creative manner. They must be resourceful, versatile and able to work to a high quality standard. They must be capable of following international developments in their own field. They must be capable of identifying and solving problems in commissions and estimating costs. They must be familiar with the visual requirements of different media and know how to use different implements and materials properly and economically. They must possess sufficient oral and written language skills.

Candidates are required to demonstrate their vocational skills in their own specialist area by producing a portfolio. They must be able to choose a sufficiently in-depth approach to their specialist area (press photography, nature photography, advertising photography or portrait photography). They must be able to carry out their plan to a high quality standard and according to schedule.

Candidates must command sufficient knowledge of the field of photography, its organisations, publications and training. They must be capable of working as trainers in their field, delivering lectures and participating in planning and development of training.

Those who have completed the qualification may work as photographers in their specialist area as employees or as independent self-employed people.

MUSIC

VOCATIONAL QUALIFICATION

- Vocational Qualification in Music

FURTHER VOCATIONAL QUALIFICATION

- Further Qualification in Popular Music Production

Vocational Qualification in Music

The compulsory module of the qualification common to all is *basic skills in the music field*.

The qualification titles in the competence area in music performance are Ensemble/Orchestra Musician, Accompanist, Singer and Church Musician. The compulsory modules for Ensemble/Orchestra Musicians, Accompanists and Singers are *instrumental skills, ensemble and orchestral skills, understanding of music and functioning in different working environments as musicians/music technologists*. The compulsory modules for Church Musicians are *instrumental skills of church musicians, choral and ensemble skills, understanding of music, liturgical music and knowledge of working life and parish music education*. In addition, they are all required to choose two of the following optional modules of the competence area: *development of instrumental skills, development of ensemble and orchestral skills, production work, development of music technology skills, composition and arrangement*.

The qualification titles in the competence area in instrument maintenance and music technology are Piano Tuner and Music Technologist. The compulsory modules for Piano Tuners are *piano tuning, piano maintenance, entrepreneurship and marketing* and either *piano tuning as customer service* or *basic piano repairs*. As optional modules, candidates must take either *maintenance of pianos* or *working methods in grand piano maintenance* or, alternatively, both of the following modules: *development of instrumental skills* and *development of music technology skills*. The compulsory modules for Music Technologists are *instrument and ensemble skills of music technologists, understanding of music, functioning in different working environments as musicians/music technologists, basic skills in music technology* as well as *information technology in music* or *recording* or *sound reproduction*. Two of the following optional modules must also be taken: *project work in music information technology, project work in recording, project work in sound reproduction, development of instrumental skills, development of ensemble and orchestral skills, production work*.

Candidates must be familiar with Western art music, Afro-American music and Finnish folk music as well as with the history and development of musical instruments. They must command the core contents of the maintenance of their own instrument group and, in particular in the competence area in music performance, instrumental skills. In their work, they must be able to take account of copyrights related to composition, performance and production of music. They must possess the skills to use information and communications technology to acquire information and for communication. They must also be able to communicate matters related to their own field in a language other than their mother tongue. They must be capable of functioning flexibly in different working environments.

Ensemble/Orchestra Musicians, Singers and Accompanists who have completed the qualification may work with different orchestras, ensembles and combinations. Church Musicians may function as junior cantors and in parish musical work in the Evangelical Lutheran Church of Finland. Piano Tuners possess the skills to tune, service and repair upright and grand pianos

and harpsichords as self-employed individuals or employees. Music Technologists may work in assignments related to sound reproduction, recording and music information technology that require artistic and technical competence. Those who have completed the Vocational Qualification in Music may also function in different service and production assignments as well as in leisure and instruction activities in their field.

Further Qualification in Popular Music Production

The requirements of the competence-based qualification are currently being prepared.

THEATRE AND DANCE

VOCATIONAL QUALIFICATION

- Vocational Qualification in Dance
- Vocational Qualification in Circus Arts

FURTHER VOCATIONAL QUALIFICATION

- Further Qualification in Theatre

SPECIALIST VOCATIONAL QUALIFICATION

- Specialist Qualification in Theatre

Vocational Qualification in Circus Arts

The requirements of the competence-based qualification are currently being prepared.

Vocational Qualification in Dance

The compulsory modules of the qualification are *dance techniques in support of vocational competence, body care, expressive skills, production work and history of dance and dance analysis*. One of the following specialisation areas must be chosen: *ballet, modern dance, jazz and popular dance*. One of the following modules must also be taken: *dance techniques consolidating competence or dance techniques expanding competence*. The qualification title is Dancer.

Candidates must command the dance technique and expression supporting their own specialisation area and they must be familiar with other areas of dance supporting these. They must know how to apply their basic knowledge of anatomy and physiology in practical work and also look after their own body's well-being. They must understand the effects of mental well-being on physical qualities and the significance of nutrition to the body's functional abilities.

They must be capable of making independent artistic decisions and of expressing themselves holistically and extensively. They must know how to work with different choreographers and to interpret different works of art. They must have experience of putting together a dance production or some other performance in co-operation with professionals from different fields and they must understand the collaborative processes involved in productions. On the one hand, they must be able to function as members of groups and, on the other, know how to demonstrate their own personal way of expression. They must be capable of creating their own independent artistic project and of describing their learning process.

They must possess the basic skills to examine the different genres and styles of dance as well as the relationships between different factors of dance. They must understand the backgrounds of their field of dance and be familiar with the history of Western and Finnish dance as well as with different styles of music. They must be familiar with the operating principles of Finnish arts and cultural administration. They must also be able to express themselves in writing and to manage in practical work situations in both national languages and one foreign language. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification possess extensive basic skills for different assignments in the field as well as specialised competence and vocational skills required by working life in one sector of the qualification.

Further Qualification in Theatre

The common modules of the qualification are *common vocational skills in theatre* and *production and artistic processes in theatre*. In addition to these, candidates must choose one specialisation area and take the corresponding qualification modules as follows: All candidates choosing the **specialisation area in production technology** must take the *common production technology skills* module. In addition, one of the following modules must also be selected: *stage manager, prompter, property master*.

The common module in the **specialisation area in performance technology** is *common performance technology skills*. In addition, one of the following modules must also be selected: *light, sound, stage*. It is also possible to select some of the following optional extra modules: *AV technology, image processing, moving light* and *wireless microphone technology*.

All candidates choosing the **specialisation area in set construction** must take the *common set construction skills* module. In addition, one of the following modules must also be selected: *metalwork, woodwork, surface treatment*.

All candidates choosing the **specialisation area in costume making** must take the *common costume-making skills* module. In addition, three of the following modules must also be selected: *computer-assisted pattern-making, headgear and accessories, historical costumes, padding and support structures, fantasy costumes and characters, dancers' costumes* and *surface treatment, dyeing and patinating*.

Candidates choosing the **specialisation area in make-up art** must take the following four modules: *common make-up skills, colour make-up, hair and false hair, special effects make-up*.

The common module in the **specialisation area in puppet theatre** is *common puppet theatre skills*. In addition, one of the following modules must also be selected: *puppet-making, puppet theatre education*.

It is also possible to incorporate the *entrepreneurship* module within each specialisation area.

Candidates must be familiar with the nature of artistic and technical work in theatre. They must be able to work in theatre taking occupational health and safety into account. They must be aware of the content and meaning of professional terminology commonly used in theatre. They must be familiar with theatre and style history as part of the development and current activities in the field.

Candidates must be familiar with the structure and significance of Finnish theatre. They must command the key elements of the production process. They must understand that performance is the starting point for all activities. They must know how to work to a high quality standard. They must command a variety of interactive situations in working life. They must be able to work economically and efficiently.

Candidates must command the skills and knowledge of their chosen specialisation area. They must be familiar with other areas of production. They must be capable of communicating about their own occupational field in Finnish or Swedish and in English. They must know how to use the equipment and materials required in their work. They must be able to make use of information technology in their own occupational field.

Candidates specialising in production technology must, among other things, be able to adapt

to technical and artistic processes in theatre work. They must be familiar with different types of audiovisual equipment used at the workplace. They must command production planning and management, also making use of information technology. They must know how to feed lines to actors during rehearsals and in performance situations, when they require assistance with their performance. They must be able to design props for a performance.

Candidates specialising in performance technology must be capable of assisting in basic lighting, sound and stage technology assignments, in addition to their own occupational area. They must command electrical safety instructions, occupational health and safety regulations and fire safety instructions relevant to their own occupational field. They must be familiar with lighting systems and equipment as well as concepts and calculations involved in lighting technology.

Candidates specialising in set construction must, among other things, know how to use work-related machinery safely and efficiently and be familiar with the field's working methods, being able to apply these to set construction.

Candidates specialising in costume making must, among other things, know how to make patterns for, shape and cut costumes and design and create special garments and effects.

Candidates specialising in make-up art must be familiar with the make-up work process, among other things. They must know how to create role make-ups that are beautifying, corrective and based on role analysis of the script. They must know how to apply prosthetics, false hair and wigs.

Candidates specialising in puppet theatre must command basic puppet theatre techniques, among other things. They must know how to make theatre puppets from different materials. They must be able to take the developmental phases of the target audience into account in activity and performance situations. They must be able to design art education schemes by means of puppet theatre.

Candidates taking the entrepreneurship module must command the skills and knowledge required to start and run a business enterprise.

Those who have completed the qualification may work in production and theatre technology assignments in theatrical and other programme production, or with theatrical puppets in art, cultural, teaching and art education assignments, or as make-up artists in theatre and other stage art and in the media.

Specialist Qualification in Theatre

The common modules of the qualification are *common vocational skills in the Specialist Qualification in Theatre* and *supervisory skills in theatre*. In addition to these, candidates must choose one specialisation area. Candidates choosing the **specialisation area in performance technology** must take one of the following modules: *light*, *sound* or *stage*. Candidates choosing the **specialisation area in make-up art** must take the following modules: *general make-up skills*, *colour make-up*, *hair and false hair* and *special effects make-up*. The other two specialisation areas are **set realisation** and **costume realisation**. In addition, it is also possible to incorporate the *entrepreneurship* module into the qualification.

Candidates must have extensive command of artistic work as a whole and their own work as part of it. They must be familiar with theatre history and command the historical development of their own occupational field. They must command key methods used in planning demanding artistic projects. They must be capable of controlling and developing the quality of production.

They must be able to recognise the effects of their work unit on a theatre or another institution as a whole and on their environment. They must understand the mission and objectives of their organisation or unit.

Candidates must be familiar with the methods of staff planning and recruitment and the basics of the collective agreement system and employment contracts. They must command the basic principles of leadership and efficient management styles. They must know how to supervise and assess staff performance, provide motivating feedback and attend to staff well-being. They must command the organisation's principles of public relations and interaction.

Candidates must command the skills and knowledge of the module(s) in their chosen specialisation area. They must know how to use the technological systems and equipment as well as materials and methods in the field. They must command rehearsal and performance activities and their own role as part of the whole. After reading a script, they must be able to perceive the style and scope required for their work. They must command different genres and style history. They must know how to produce documents relating to their own work. They must have extensive command of special terminology used in theatre and in their own occupational field in Finnish or Swedish and in English and they must be able to make use of information technology. In their work, they must be able to adapt to technical and artistic processes in theatre work.

Candidates taking the sound module within the specialisation area in performance technology must command areas such as the following concepts and calculations used in audio technology: electrical calculations in audio technology, quantities in the acoustic field, units of measurement and concepts of acoustics.

Those taking the stage module of the specialisation area in performance technology must also know how to interpret set sketches, among other things.

Those taking the specialisation area in set realisation must also command set design, preparation process and organisation from construction to erection, striking and storage.

Those taking the specialisation area in costume realisation must also know how to interpret costume sketches, among other things. They must also be able to organise the preparation of costumes.

Those taking the specialisation area in make-up art must have extensive command of areas such as skin-care and cleansing products commonly used in make-up art as well as colour make-up preparations and implements. They must know how to create beautifying, corrective and special effects make-ups and apply prosthetics, false hair and wigs.

Candidates taking the entrepreneurship module must command the skills and knowledge required to start and run a business enterprise.

Those who have completed the qualification may work in production and theatre technology assignments in theatrical and other programme production, or with theatrical puppets in art, cultural, teaching and art education assignments, or as make-up artists in theatre and other stage art and in the media.

SOCIALSCIENCES, BUSINESS AND ADMINISTRATION

BUSINESS AND COMMERCE

VOCATIONAL QUALIFICATIONS

- Vocational Qualification in Business and Administration (Merkonomi)

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification in Business Administration, Financing and Accounting
- Further Qualification in Customs
- Further Qualification for Entrepreneurs
- Further Qualification in Estate Agency Services
- Further Qualification in Financing and Insurance
- Further Qualification in Foreign Trade
- Further Qualification in Marketing Communications
- Further Qualification in Messaging and Logistics Services
- Further Qualification for Porters
- Further Qualification in Property Management
- Further Qualification in Records and Archives Management
- Further Qualification in Sales
- Further Qualification in Secretarial Studies

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification in Business Administration, Financing and Accounting
- Specialist Qualification for Business Advisors
- Specialist Qualification in Business Management
- Specialist Qualification in Foreign Trade
- Specialist Qualification in Management
- Specialist Qualification in Marketing Communications
- Specialist Qualification for Shop Managers

Vocational Qualification in Business and Administration (Merkonomi)

The compulsory module common to all competence areas of the qualification is *business economics and administration*. The compulsory modules of the competence area in customer services and marketing are *customer marketing*, *marketing communications* and *marketing planning*. The compulsory modules of the competence area in information and library services are *information and library services*, *material acquisition and information storage* and *information acquisition and information services*. The compulsory modules of the competence area in business administration are *production of financial information* and *planning and monitoring business finances*. The compulsory modules of the competence area in office services and information management are *information management* and *office services and software user support*.

Candidates must be able to select a suitable form of enterprise for a small enterprise, to draw up a business plan, profit and cash budgets and balance the accounts. They must be able to deal

with a small enterprise's domestic invoicing and sales and purchases ledgers and to calculate its salaries and wages. They must use software tools independently and be able to work in basic marketing, business administration and office service assignments. They must be familiar with the rights and responsibilities of staff in terms of the employment relationship. They must be able to deal with various customer service tasks and to negotiate and sell in purchase and sales situations. They must command the basic terminology related to the enterprise's different functions in both national languages and one foreign language. In addition, they must command the skills and knowledge of their chosen competence area.

Those who have completed the qualification are equipped to work in customer service and office service assignments in the business and administration field and in customer services and marketing, office services and information management, business administration or information and library services, depending on their chosen competence area.

Further Qualification in Business Administration, Financing and Accounting

Candidates taking the Further Qualification in Business Administration, Financing and Accounting must select one of the following four optional competence areas: accounting and financial statements, management accounting, accounting and financial statements in public administration and payroll administration. In addition, they must take the common qualification module *functioning in an organisation's financial administration*.

Candidates choosing the competence area in accounting and financial statements must take the *keeping accounts and putting together financial statements* module. Those taking this qualification module must be able to participate in their own organisation's financial planning, keep sales and purchases ledgers, keep accounts, prepare a small organisation's financial statements independently or participate in putting together a large organisation's financial statements, fill in a tax return and prepare for audits and tax inspections and analyse the enterprise's performance and financial standing on the basis of financial statements.

Candidates choosing the competence area in management accounting must take the *management accounting duties* module. Those taking this qualification module must know how to keep accounts, prepare a small organisation's financial statements independently or participate in putting together a large organisation's financial statements, prepare budgets for a small organisation or a unit of a large organisation in accordance with specified objectives, prepare price, cost and profitability estimates and produce alternative estimates to assess the organisation's financial requirements.

Candidates choosing the competence area in accounting and financial statements in public administration must take the *keeping accounts and putting together financial statements in public administration* module. Those taking this qualification module must know how to comply with the principles governing the decision-making processes and procurement procedures of a local or state authority or another public body, prepare or participate in preparation of budgets for such an authority or public body and produce follow-up reports on budget implementation, draw up budget implementation forecasts, deal with transfers of appropriations and internal invoicing, attend to value added tax procedures relating to the operations of such an authority or public body, keep sales and purchases ledgers and keep the accounts of such authority or public body and prepare a small local authority's financial statements or participate in preparation of financial statements for a local or state authority or another public body.

Candidates choosing the competence area in payroll administration must take the *payroll administration duties* module. Those taking this qualification module must know how to apply key labour legislation and collective agreements relating to wages and salaries, manage an organisation's payroll administration, attend to payroll accounting and deal with statistics and accounts relating to wages and salaries.

The qualification module common to all candidates is *functioning in an organisation's financial administration*. Candidates completing the qualification module must know how to implement their own organisation's strategies as part of their financial administration assignments, function as members of working groups, use modern information technologies and make use of relevant sources of information in their own work.

In addition, candidates may also choose the *entrepreneurship* module. In such cases, they must be able to assess their own personal opportunities and potential to function as entrepreneurs in the field. They must be able to examine the field, considering the opportunities it provides for and the risks involved in starting up and developing business operations. They must be familiar with different ways and forms of setting up in business and be able to develop a rough business idea for their own business. They must know how to create customer and network relationships, complying with the most important financial principles of business operations and using various expert services.

Those who have completed the qualification may work in various financial administration assignments in small or medium-sized organisations or in financial management departments of large organisations.

Further Qualification in Customs

The requirements of the competence-based qualification are currently being prepared.

Further Qualification for Entrepreneurs

The compulsory modules of the qualification common to all are *specification of a business idea*, *drawing up a business plan* and *implementation of a business plan*.

Candidates must be able to assess their own competence development needs and occupational and personal qualities and potential as entrepreneurs. They must be capable of critically examining the competitive and financial prerequisites for implementing their business idea. They must be able to assess opportunities and risks realistically. They must be capable of planning, building and developing a profitable range of products for their business enterprise. They must be able to define the customer groups of their enterprise and to participate in co-operation networks.

Candidates must be able to plan the enterprise's business operations and choose a business plan viable in terms of its structure and content. They must be familiar with different forms of enterprise and be able to select the most appropriate one for their business.

Candidates must be aware of factors influencing the financial results of the enterprise and know how to interpret financial statements and key financial ratios. They must be capable of planning production within their enterprise, making decisions concerning staffing and organising administrative tasks. They must know how to purchase, sell, market and make agreements. They must be familiar with statutes, employer obligations and labour legislation applicable to their

line of business and to entrepreneurship. They must be capable of launching their business operations on the basis of the business plan or of putting a business plan into practice in an existing enterprise. Where necessary, they must be able to make use of expert services and to acquire information using modern techniques.

The qualification is intended for people planning to launch business operations or for those who have already been entrepreneurs for a few years.

Further Qualification in Estate Agency Services

The modules of the qualification are *client relationship management*, *provision of agency services* and *drawing up contracts*. In addition, it is also possible to select the *entrepreneurship* module.

Candidates must be able to form an idea of the role of their employer agency as a provider of agency services and of their own role as responsible members of the organisation. They must know how to create, maintain and develop client relationships. They must know how to sell agency services in a client-focused manner. They must know how to assess and develop the quality of their own work relating to client relationship management, agency services and contract-making.

Candidates must know how to market a site properly and use expert services as required. They must be able to seek clients actively and chart their needs. They must know how to carry out an estate presentation, keep in touch with the client and deal with client negotiations. They must be able to carry out the quotation procedure from start to finish. They must know how to draw up a legally appropriate contract in each specific situation, taking the interests of both parties into account. They must know how to attend to post-sales measures relating to the contract and client relationship.

Those taking the entrepreneurship module must be able to assess their own entrepreneurial potential. They must be familiar with the key principles of business activities and know how to act accordingly.

Completion of the Further Qualification provides capabilities to take the Licensed Real Estate Agent (LKV) examination and the Licensed Housing Rental Agent (LVV) examination.

Those who have completed the qualification may work in customer service and expert assignments relating to valuing, selling and renting properties and shares in real estate and housing companies.

Further Qualification in Financing and Insurance

The common module of the qualification is *functioning in financing and insurance*. Another compulsory module is to be selected according to the specialisation area.

The second qualification module to be taken in the **financial intermediation and payment transactions** specialisation area is *financial intermediation and payment transactions*.

In the **savings and investment activities** specialisation area, the module is *savings and investment activities*.

In the **social security** specialisation area, the module is *social security*.

In the **employment pension security** specialisation area, the module is *employment pension security*.

The module of the qualification in the **risk insurance** specialisation area is *risk insurance*. In addition to the compulsory modules, candidates may select the *entrepreneurship* module.

Candidates must be familiar with the structure of the financial, insurance, investment and social security sectors, forms of financing, financial intermediaries and types of insurance as well as with the Finnish social security and employment pension systems. They must know how to acquire and process information and assess the effects of development trends in the financial sector on their work and working community. In their work, they must take account of the key principles of business operations and essential legislation in the sector.

Candidates must know how to function as group members and to give and accept constructive feedback. They must be capable of assessing and developing their work and vocational skills. They must understand the significance of the customer service process and the special features of the sector in customer relationship management. They must know how to apply the customer service concept of their organisation and to comply with the ethical principles of the financial sector in different customer service situations. They must recognise individual customer needs and know how to advise customers on the selection and use of services and products. They must be capable of utilising their organisation's customer relationship management system in counselling and service situations.

Candidates must possess the interaction skills required for their work and, in addition to their native language, they must also be able to manage customer service situations in one other language. In addition, they must command skills and knowledge of their chosen optional module.

Candidates who have chosen the entrepreneurship module must be able to assess their own potential to function as entrepreneurs. They must know how to examine the prerequisites for successful business operations, prepare a business idea for their potential business operations and calculate whether the intended operations are likely to be profitable and sufficient to make a living. They must know how to make use of various networks and expert services when contemplating and starting business operations.

Those who have completed the qualification may work in customer service and expert assignments requiring diversified competence in financing, investment services and insurance.

Further Qualification in Foreign Trade

The qualification comprises two specialisation areas: the specialisation area for foreign trade assistants and the specialisation area for forwarders. The common modules of the specialisation area for foreign trade assistants are *operating in an international environment*, *implementation of international communication* and *implementation of trade contracts*. The common modules of the specialisation area for forwarders are *operating in an international environment*, *attendance to forwarding commissions* and *customs procedures in external and internal trade*. In addition, it is also possible to take the *entrepreneurship* module in both specialisation areas.

In the specialisation area for foreign trade assistants, candidates must know how to work in an international environment. They must be capable of using different channels and equipment diversely in international communication. In addition to their native language, they must also be able to attend to business in two foreign languages. They must be able to co-operate with other people in order to plan and organise export campaigns, participate in saleswork and attend to meeting and travel arrangements. They must know how to implement trade contracts and draw

up and submit documents. They must be capable of attending to foreign trade consignments appropriately and as required in each specific situation.

In the specialisation area for forwarders, candidates must know how to work in an international environment. They must be capable of attending to forwarding commissions and of interpreting these and the terms and conditions of contracts. They must be able to plan and implement commissions and insure consignments, attend to export and import clearances and transit procedures and draw up and submit the required documentation. They must command customs procedures involved in trade within and outside the European Union. They must possess the necessary information acquisition skills.

Those who have completed the qualification may work in forwarding transport, import and export companies in assignments requiring vocational skills in the field.

Further Qualification in Marketing Communications

The qualification comprises three specialisation areas for marketing assistants, visual merchandisers and event promoters.

The modules of the qualification in the specialisation area for marketing assistants are *preparation of campaign and project plans, functioning in marketing communications production processes and acquisition, editing and communication of information.*

The modules in the specialisation area for visual merchandisers are *preparation of visual plans, visual planning and use of space* and *visual planning and implementation of displays.*

The modules in the specialisation area for event promoters are *preparing event action plans, preparation and implementation of events* and *implementation of post-event measures.*

Candidates must be able to work in accordance with the business enterprise's communications concept. They must be familiar with legislation and agreements governing the field. They must know how to phase a process and act accordingly. They must be familiar with the media and their activities and be able to assess their necessity. They must know how to draw up, present and implement a plan and monitor its progress.

Candidates must command different phases of the production process. They must be able to work with their team and co-operation partners. They must know how to put services and products out to competitive tendering and select the best and most useful suppliers.

Depending on their chosen specialisation area, candidates must know how to search for and select relevant information and edit it into a useful form, among other things. They must know how to submit materials to service enterprises. They must know how to communicate in a customer-focused manner and with sufficient language skills. They must be able to design a space so as to create an effective integrated whole.

Candidates must know how to produce drawings on the space and realise the space according to plans. They must command the use of materials, lighting and colours. They must be able to plan and implement displays and compositions as well as campaigns in store settings. They must know how to design an event and schedule and implement it according to plans. They must know how to organise transport services and produce marketing materials. They must know how to check invoices, monitor budget implementation and handle complaints.

Those who have chosen the entrepreneurship module must command the skills and knowledge required for setting up and running a business.

Those who have completed the qualification may work in marketing assignments within enterprises and organisations or as independent entrepreneurs.

Further Qualification in Messaging and Logistics Services

The common module of the qualification is *management of order and delivery processes*.

In addition, one of the following modules must also be selected: *customer work management* and *provision of delivery services*. In addition, the qualification comprises the optional *entrepreneurship* module.

Candidates must be familiar with their sector and their own organisation and be able to describe operating modes and service processes in messaging and logistics services and the principles and procedures of these. They must be able to handle order and delivery processes in compliance with the principles of logistics. They must know how to function in key assignments relating to order and delivery processes in a responsible, flexible and co-operative manner. They must know how to utilise and use different messaging methods, channels and devices in order and delivery processes.

Candidates must be able to plan, control and develop their own work and use of time. They must be familiar with key labour legislation governing the field and its occupational safety and environmental regulations. They must be able to work in a customer-focused and service-oriented manner and know how to acquire and use the information required in their work in diverse ways.

Those who have completed the qualification may work in messaging and logistics service assignments related to customer service, transport operations, distribution and storage.

Further Qualification for Porters

The qualification comprises three compulsory modules: *customer service activities*, *maintenance of technical functions* and *security operations*. In addition, it is also possible to take the *entrepreneurship* module.

Candidates must be familiar with their own organisation and its functions. They must be capable of flexible, appropriate, co-operative, discrete and purposeful customer service in their own language, but also in the other national language and in one foreign language. They must know how to produce and seek information as required and attend to receipt and distribution of deliveries appropriately. They must know how to provide and procure services related to and required in their work in an independent and proactive manner.

Candidates must know how to use their organisation's office, communications and audiovisual equipment, room scheduling and access control systems and also be able to instruct people in the use of such equipment and arrange for it to be serviced. They must know how to monitor the condition of buildings and take appropriate action to ensure technical functionality. They must know how to attend to the proper condition of routes and to the environmental responsibilities of their working community.

Candidates must recognise safety and information security risks, know how to comply with safety and security regulations, use control technology and take appropriate actions in risk situations.

Those who have completed the qualification may work for state and local authorities and private companies in different customer service, organisation and technical assignments.

Further Qualification in Property Management

The common modules of the qualification are *management and administration of housing companies*, *client relationship management* and *property life-cycle management*. In addition, it is also possible to select the *administration of rental housing properties* and *entrepreneurship* modules.

Candidates must be familiar with the role of their own organisation as a provider and purchaser of services. They must be able to function in the management and administration of housing companies. They must be able to act in a manner worthy of their clients' trust and in cooperation with other people, understanding their own rights, duties and responsibilities. They must comply with laws and regulations. They must command decision-making procedures used in housing companies and be able to assume responsibility for implementation of decisions. They must be able to search for and make use of information required in their work. They must know how to attend to duties relating to the financial management of housing companies. They must be able to attend to documentation practices and notification obligations of housing companies.

Candidates must be able to handle customer service processes reliably and to a high quality standard. They must be able to provide information in a diverse, understandable and credible manner. They must possess sufficient language skills to function in the other national language (Swedish) and in English. They must know how to develop customer services. They must be able to manage the property life cycle. They must know how to purchase and manage property maintenance services. They must know how to attend to routine contractual matters affecting properties in different stages of the property life cycle. They must be able to ensure the technical maintenance and functionality of the properties they are managing and attend to safety and security at the properties. They must be able to monitor property maintenance operations.

Candidates who have chosen the administration of rental housing properties module must know how to manage rental residential buildings, deal with flat rental and tenant selection and attend to financial management.

Those who have selected the entrepreneurship module must be able to assess their personal opportunities and potential as entrepreneurs. They must be able to examine the field and the business opportunities it provides. They must be familiar with different enterprise forms and business practices and know how to establish client and partner relationships. They must command the basic principles of entrepreneurship.

Those who have completed the qualification may work in property management and property service companies and in property management assignments for major property-owning organisations.

Further Qualification in Records and Archives Management

The compulsory modules of the qualification are *planning, supervision and organisation of records and*

archives management and *records and archives management and document information services*. In addition, it is also possible to select the *entrepreneurship* module.

Candidates must demonstrate command of tasks relating to organisation of archives management, be able to prepare an archiving plan based on life-cycle thinking and know how to provide instructions for records and archives management and develop these.

Candidates must be able to determine different tasks involved in records and archives management and be capable of participating in planning and organisation of responsibilities, functions and work assignments. They must know how to bring their expertise in records and archives management to the preparation and planning of an organisation's annual plans and information management and information systems. They must know how to produce statistics on their own work. They must be able to guide, familiarise and inform other members of the working community and new employees.

In this work, candidates must be capable of co-operating with other experts and be able to use the field's concepts and terminology and apply good information management practices and the principles of economy. They must be capable of planning how to record and store various materials and documents (including in electronic format). They must be capable of determining different document types within the plan, together with registration and archival methods, retention periods and storage locations and people responsible for such documents, complying with laws and regulations. They must be able to indicate the archive reference, protection class, publicity and confidentiality and personal data file status of documents in the plan in co-operation with experts.

Candidates must demonstrate command of tasks relating to permanent archives and the ability to work in information service assignments in a customer-focused manner and in compliance with good information management practices. They must demonstrate that they are capable of developing their work and competence and that they are able to co-operate with other people and as responsible members of their working community. They must know how to produce clear and grammatically correct documents, complying with regulations, standards and organisational practices. They must know how to make diverse use of information technology when producing documents.

Candidates must recognise various documents, including those in foreign languages. They must know how to record and register documents in accordance with instructions and be able to handle data generated in electronic transactions and case processing, including electronic mail. They must know how to process and archive documents carefully in accordance with the archiving plan, complying with data security guidelines.

Candidates must be able to comply with the retention periods indicated in the archiving plan. They must be able to differentiate disposable data and dispose of documents in accordance with instructions. They must know how to finalise archives when the organisation closes down. They must know how to store documents in compliance with technical archival instructions and a protection and rescue plan. They must be able to identify the need to repair damaged documents and know how to take action according to instructions. In their work, they must be able to comply with publicity legislation and instructions issued by virtue of such legislation on disclosure of information. In addition, they must comply with instructions concerning processing of personal data and data security.

Candidates who have chosen the entrepreneurship module must be able to assess their own potential to function as entrepreneurs. They must know how to examine the prerequisites for successful business operations, prepare a business idea for their potential business operations

and calculate whether the intended operations are likely to be profitable and sufficient to make a living. They must know how to make use of various networks and expert services when contemplating and starting business operations.

Those who have completed the qualification may work for government agencies and institutions, municipal organisations, parishes, foundations, other organisations and business enterprises in records and archives management assignments.

Further Qualification in Secretarial Studies

The common modules of the qualification are *management of the operating environment* and *command of secretarial work*. In addition, candidates may incorporate the *entrepreneurship* module as part of their qualification.

Candidates must be familiar with their employer organisation and know how to comply with its business or service idea and operational policies. They must be able to function in working groups and co-operate with their colleagues. They must be able to act in a customer-focused manner in all situations.

Candidates must know how to process and communicate relevant and necessary information using various communications equipment, taking data security into account. They must know how to co-ordinate their own operations and organise various events. They must know how to produce and archive documents properly. They must be able to act as secretaries during meetings and negotiations. They must be able to acquire products and services economically and carefully. They must be able to assess their own vocational skills and development needs.

Those taking the entrepreneurship module must be able to assess their own entrepreneurial potential. They must be familiar with the key principles of business activities and know how to act accordingly.

Those who have completed the qualification may work as secretaries or assistants in business enterprises or other organisations of different sizes.

Further Qualification in Sales

The common module of the qualification is *preparing for sale*. In addition, one of the following competence areas must be chosen: **consumer sales** (including the *preparing for sale* and *selling to consumers* modules), **business-to-business sales** (including the *preparing for sale* and *business-to-business selling* modules), **independent sales representation** (including the *preparing for sale* and *functioning as an independent sales representative* modules), **sales of home electronics and furniture** (including the *preparing for sale* and *selling home electronics and furniture to consumers* modules) and **telemarketing** (including the *preparing for sale* and *functioning in a telemarketing centre* modules).

In each competence area, candidates may also choose to take the *entrepreneurship* module.

Candidates must be able to comply with the key principles of business operations and their organisation's marketing concept. Candidates must know how to prepare for sales situations. They must be able to carry out sales work. They must be able to function as responsible members of their own working community.

Candidates must command skills and knowledge of their chosen area. They must know how to create, maintain and develop customer relationships. They must know how to work purposefully and effectively in sales assignments within their chosen competence area. They must command customer service and know how to deal with customers, members of their working community and co-operation partners in various interactive situations. They must master various sales techniques and know how to assist in implementation of marketing efforts. They must be familiar with the products of their outlet and command product delivery processes.

Candidates taking the entrepreneurship module must command the skills and knowledge required to start and run a business enterprise.

Those who have completed the qualification may work in sales or service assignments in various business enterprises and other organisations.

Specialist Qualification in Business Administration, Financing and Accounting

The common module of the qualification is *development of organisational business administration*. In addition, two of the following modules must also be chosen: *production and analysis of financial statements information, managing business administration in business reorganisation situations, development of strategic financial control, development of operational financial control, management and development of financing activities, management and development of investment activities, management and development of human resources processes, management and development of pay and reward systems*.

The qualification is intended for people operating in responsible management, expert or project assignments in business and human resources administration within public or private sector organisations.

Candidates must draw up a development plan for business administration on the basis of their own organisation's strategy and select a development project within their own organisation. They must be able to assess the current status and development trend of business administration based on data such as indicators and with expert assistance. They must be able to put plans into action. They must know how to develop competencies in different work assignments within their own organisation. They must know how to instruct and train people. They must be able to assess their own entrepreneurial potential realistically and critically.

Candidates taking the production and analysis of financial statements information module must know how to treat different items that appear on financial statements. They must be able to apply legislation to financial statements and draw up consolidated financial statements. They must know how to analyse finances and carry out a development project.

Those taking the managing business administration in business reorganisation situations module must know how to apply tax legislation and Community legislation in business reorganisation situations.

Candidates taking the development of strategic financial control module must know how to manage and develop strategic financial control within their own organisation or unit by preparing alternative financial calculations and monitoring their implementation.

Those taking the development of operational financial control module must know how to prepare calculations in support of operating activities, monitor their implementation and draw

up reports and analyses.

Those taking the management and development of financing activities module must know how to organise payment transactions and cash management, making use of information systems and opportunities provided by financing sources. They must know how to prepare and monitor financial budgets and liquidity forecasts in order to safeguard liquidity.

Those taking the management and development of investment activities module must know how to organise and develop investment activities and develop risk monitoring systems. They must be able to determine the advantages and disadvantages involved in the most relevant forms of investment.

Those taking the management and development of human resources processes module must know how to manage and develop aspects relating to recruitment and employment relationships, including budgeting, orientation, compliance with legislation and agreements and issues involved in termination of employment.

Candidates who have chosen the management and development of pay and reward systems module must know how to determine wages and salaries according to agreements, legislation and job grade. They must know how to develop pay and reward systems.

Those who have completed the qualification may work in highly skilled business administration jobs within the private or public sector.

Specialist Qualification for Business Advisors

The requirements of the competence-based qualification are currently being prepared.

Specialist Qualification for Entrepreneurs

The common module of the qualification is *planning and management of business operations*. One of the following optional modules must also be taken: *development of customer- and market-focused activities*, *development of human resources*, *development of financial management*.

Candidates must be capable of critically assessing the current situation of their business enterprise, its competitiveness, profitability and solvency. They must be capable of exploiting the tools and methods needed for systematic assessment and development work. They must be able to select development priorities and to draw up a development plan for their enterprise.

Candidates must know how to link the enterprise's strategic planning with the planning, budgeting and implementation of operations. They must have good interaction skills and leadership abilities and they must be capable of organising the enterprise's operations in order to implement the development plan.

Candidates must be able to anticipate the effects of changes in the operating and competition environments and to develop alternative operating models. In their work, they must be capable of exploiting information networks and new technologies as well as networking activities. They must possess the ability to apply their skills and knowledge in changing circumstances. They must be able to assess their skills needs and to draw up a development plan for themselves. They must possess the capabilities to launch a development project in their chosen area.

The qualification is intended for entrepreneurs with several years of experience as entrepreneurs or who have completed the Further Qualification for Entrepreneurs.

Specialist Qualification in Foreign Trade

The compulsory module of the qualification is *international trade*. One of the following modules must be taken: *international marketing* or *international purchasing*. In addition, it is also possible to take the *entrepreneurship* module.

Candidates must know how to assess the position of a business enterprise within the field of international competition. They must be familiar with the structures of international trade and Finnish foreign trade as well as with Finland's role in international trade. In addition, they must be aware of the operating principles of the European Union and be able to assess the effects on business operations of the benefits and challenges brought about by the EU. They must know how to plan and develop the international activities of their own business enterprise and make use of different sources of information in international trade in their work.

Candidates specialising in international marketing must be able to plan and organise a business enterprise's international marketing efforts. They must know how to draw up international marketing plans and budgets and be familiar with the principles of international financing and payment systems. They must know how to commission marketing studies and exploit international advertising and public relations. They must know how to carry out exports, plan and organise export campaigns and sales work and enter into and implement trade contracts.

Candidates specialising in international purchasing must be able to plan, develop and organise international purchasing activities, plan and implement international purchases and make and implement purchase contracts.

Those who have completed the qualification may undertake foreign trade assignments.

Specialist Qualification in Management

The Specialist Qualification in Management is intended for people with solid practical experience in management. They manage and develop their unit and its staff within a private or public sector organisation. They possess solid competence and expertise in their own sector and in their organisation and its operations.

The common modules of the qualification are *planning of organisational operations and management* and *operational management*.

Candidates must be able to follow development trends in their sector and in management, relate these to their own operating environment and analyse and assess the current state of their own organisation. They must know how to assess finances, customer relationships, partnerships, organisational processes and human resources. They must be able to determine the visions, values and strategies of their own area of responsibility and prepare operational plans together with their staff. They must be able to reflect on their own management skills and prepare a leadership development plan. They must be able to select a development target and to draw up a plan for a development project.

Candidates must be able to manage, assess and develop the operations of their organisation, complying with the enterprise's strategy. They must know how to manage and develop finances, customer and partner relationships, organisational processes and human resources. They must be able to develop their own actions, work and competence. They must know how to launch and manage a development project and assess further development needs.

Specialist Qualification in Marketing Communications

The qualification comprises two specialisation areas: management of marketing communications and planning of marketing communications.

The common modules in management of marketing communications are *strategic management of marketing communications* and *project management in marketing communications*. The common modules in planning of marketing communications are *strategic planning of marketing communications* and *content design and implementation of marketing communications*. In addition, it is also possible to select the *entrepreneurship* module in both specialisation areas.

Candidates taking the specialisation area in management of marketing communications must know how to manage marketing communications within their own or their customer's organisation. They must possess extensive knowledge of the operations of their own business enterprise. They must be able to follow national and international developments in the marketing sector, thus being capable of assessing marketing opportunities within their organisation. Candidates must know how to devise a goal-oriented marketing communications strategy and plan for their organisation, making use of its business plan and in compliance with instructions. They must be able to assess the enterprise's needs and characteristics. When planning, they must be able to use and exploit marketing analysis models as well as market and consumer research.

Candidates must be able to define and document the brand of a business enterprise, product or service and follow development of brands in general terms and compare these. They must know how to prepare a budget for the enterprise's marketing communications and monitor its implementation. They must know how to assess, guide and monitor the design of marketing communications concepts and their organisation's design management. They must know how to manage the marketing communications process in a co-operative, cost-effective, efficient and profitable manner. They must be able to plan, carry out and make use of monitoring of marketing communications. They must know how to develop their own operations. Candidates must know how to manage marketing communications projects. They must know how to plan a project and strategy in co-operation with experts, prepare a budget for the project and monitor its implementation.

Candidates selecting the specialisation area in planning of marketing communications must command strategic planning of marketing communications. They must know how to plan, monitor and apply contents, campaigns and brands in marketing communications and to supervise and manage the production process. They must be able to function in a co-operation network and make use of experts. They must work in a cost-effective and customer-focused manner. They must be able to plan to follow up on implementation of marketing communications and choose the correct and best solutions for the purpose. They must know how to make use of monitoring of and feedback from marketing communications in subsequent projects. They must be able to assess and develop their own actions, work and competence. Candidates must know how to design contents for marketing communications in a customer-focused manner. They must command communication situations and know how to communicate and convey information to different parties. They must be able to plan a marketing communications campaign. Candidates must know how to manage the production process in marketing communications. They must know how to make use of monitoring with a view to developing their work and also attend to self-development.

In addition, candidates may incorporate the *entrepreneurship* module into their qualification. In such cases, they must be able to assess their own personal opportunities and potential to

function as entrepreneurs in the field and examine the field and the opportunities it provides for and the risks involved in starting up and developing business operations. They must be familiar with different ways and forms of setting up in business and be able to develop a rough business idea for their own business. They must know how to comply with the most important financial principles of business operations, creating customer and network relationships, and know how to acquire information and expert services required for setting up a business and in different stages of operations.

Those who have completed the Specialist Qualification in Marketing Communications may work in companies and other organisations in managerial and expert assignments relating to marketing.

Specialist Qualification for Shop Managers

The modules of the qualification are *assessment and planning of operations, implementation and monitoring of operations* and *on-the-job instruction*.

The vocational skills requirements of the qualification cover the command of the overall retail trade process and attendance to key assignments. Those who have completed the qualification have extensive skills for flexible work in managerial positions within the field as well as capabilities to maintain and develop their vocational skills. The qualification is intended for people operating in the retail trade as managers of their own unit or department. The qualification is also suitable for managers in other sectors and for people operating in responsible expert positions.

Shop managers function responsibly, being aware of their duties and in co-operation with their own personnel. They are responsible for their own unit's operations and financial profitability and participate in business planning together with their superiors and subordinates.

Those who have completed the qualification may work in managerial positions in the retail trade.

NATURAL SCIENCES

COMPUTING AND SOFTWARE

VOCATIONAL QUALIFICATIONS

- Vocational Qualification in Business Information Technology (Datanomi)

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification in Information Technology

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification in Information Technology

Vocational Qualification in Business Information Technology (Datanomi)

The compulsory modules common to both competence areas of the qualification are *business activities* and *use and development of information systems*. Candidates who have chosen the competence area in information technology services and marketing must also take either the *user support* module or the *digital communications* module. Candidates who have chosen the competence area in information systems development must also take the *information systems development* module.

Candidates must be able to commercialise their own competence, think up a business idea and to engage in small-scale entrepreneurship. They must be able to keep abreast of the development of their sector and to compile and interpret statistics and prognoses. They must be able to recognise different customer groups and the most important target groups in the sector and be able to apply the most common marketing methods and procedures of the sector in their work. They must be familiar with the basics of accounting in small enterprises or associations and be able to use accounting application software.

They must be able to design an information system so that it supports the needs of business operations and to document the system. They must be familiar with the basic structures and concepts of programming and be able to plan and programme small-scale software. They must be able to design, make and test a card index type database.

They must be familiar with the architecture of local area networks and the Internet and be able to interconnect two workstations. They must be able to manage customer service situations in their mother tongue to a high standard of speech, in the other national language and in one foreign language.

Those who have completed the qualification are equipped to work in positions requiring specialist competence in information technology. According to their chosen competence area, they are able to train and advise people on the use of information technology, to install and use software tools and to sell and market information technology equipment or resolve a company's IT issues.

Further Qualification in Information Technology

The compulsory module of the qualification is *information technology in organisational operations*. In addition, candidates must also take either of the following optional modules: *programming* or *systems support*. It is also possible to incorporate the *entrepreneurship* module into the qualification.

Candidates must understand information technology as being part of an organisation's operations. They must be able to describe the data security regulations of their own organisation and to justify their actions accordingly. They must know how to link up their own work as part of the organisation's operations and to develop their vocational skills purposefully. They must be familiar with the functions of computer hardware and peripherals used in their working community and know how to use workstation and server operating systems. They must be able to acquire information from different sources independently and to guide users in the use of software.

Candidates specialising in programming must be able to interpret specifications of information systems, be familiar with one particular programming environment and know how to perform programming assignments in multiprocessing environments. They must be able to function as members of programming projects.

Candidates specialising in systems support must be able to set up hardware and peripherals and command fault management. They must be able to document computers and peripherals used in their workplace and to purchase equipment. They must know how to install software on network environments and on workstations and to test its functionality. They must be familiar with the basics of programming and databases and know how to install and maintain database management systems and anti-virus systems. They must be familiar with the architecture of local area networks and command the basic functions of network administration and maintenance.

Those who have completed the qualification may work in different assignments within IT companies or as people responsible for the use of PCs and LANs in public administration, companies and other corporations.

Specialist Qualification in Information Technology

The specialisation areas of the qualification are *specialisation area for software designers* and *specialisation area for network specialists*. The modules of the qualification in the specialisation area for software designers are *software project design* and *software project implementation*. The modules of the qualification in the specialisation area for network specialists are *network project design; design, implementation and maintenance of network solutions* and *data security planning for network solutions*. In addition, it is also possible to take the *entrepreneurship* module as part of both specialisation areas.

Candidates who have chosen the specialisation area for software designers must be able to cooperate with customer partners and create new customer and partner relationships and expert networks. They must be able to draw up software project plans and to kick off projects. They must know how to design and document software according to project plans and assume responsibility for software implementation, testing and deployment.

Candidates who have chosen the specialisation area for network specialists must be able to build and maintain customer and partner relationships and create new customer relationships.

They must know how to draw up a network project plan and assume responsibility for its implementation. They must know how to design and document networks to meet organisations' needs, install LAN equipment and servers and maintain network environments. They must be able to organise support and guidance for network users. They must know how to draw up a data security plan for a network solution and assume responsibility for its implementation. They must be able to recognise network development needs and to develop networks in accordance with the requirements of changing technologies.

Software designers may operate as responsible project leaders of software projects. They work as experts who plan and implement software design and implementation projects to meet customer needs.

Network specialists may undertake LAN design, development and maintenance assignments. They are responsible for network maintenance and management and organise and supervise tasks related to network management.

TECHNOLOGY, COMMUNICATION AND TRANSPORT

ARCHITECTURE AND CONSTRUCTION

VOCATIONAL QUALIFICATION

- Vocational Qualification in Building Maintenance Technology
- Vocational Qualification in Construction
- Vocational Qualification in Land Surveying

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification in Building Construction
- Further Qualification in the Building Products Industry
- Further Qualification for Commercial Divers
- Further Qualification in the Construction Industry
- Further Qualification for District Heating Fitters
- Further Qualification for Floor Layers
- Further Qualification for Heating Equipment Fitters
- Further Qualification for Industrial Pipefitters
- Further Qualification in Infrastructure Construction
- Further Qualification for Pipefitters
- Further Qualification for Property Maintenance Operatives
- Further Qualification in Refrigeration Fitting
- Further Qualification in Technical Design
- Further Qualification in Technical Insulation
- Further Qualification for Ventilation Pipefitters
- Further Qualification in Ventilation System Cleaning
- Further Qualification in Water Supply and Sewerage

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification in Building Construction
- Specialist Qualification for Construction Site Managers
- Specialist Qualification for District Heating Fitters
- Specialist Qualification for Floor Layers
- Further Qualification in Infrastructure Construction
- Specialist Qualification for Pipefitters
- Specialist Qualification for Property Maintenance Operatives
- Specialist Qualification in Refrigeration Fitting
- Specialist Qualification for Ventilation Pipefitters

Vocational Qualification in Building Maintenance Technology

The competence areas of the qualification are heating, plumbing and ventilation engineering, property maintenance or technical insulation. The compulsory modules of the specialisation area in heating, plumbing and ventilation engineering are either *basic skills in building maintenance technology, measurement, control and automation technology, sheet metal work and basic installations* and

ventilation installations or basic skills in building maintenance technology, measurement, control and automation technology, heating and plumbing installations and welding technology. The compulsory modules of the specialisation area in property maintenance are *basic skills in building maintenance technology, maintenance of heating, plumbing and ventilation systems, general property work and building automation and electrical systems.* The compulsory modules of the specialisation area in technical insulation are *basic skills in building maintenance technology, insulation of building maintenance technology equipment and industrial insulation.*

Three of the following optional modules must also be taken: *heating, plumbing and ventilation planning for small houses; maintenance of heating and plumbing equipment; building sheet metal work; district heating and equipment; cleaning and maintenance of ventilation systems; refrigeration technology and cold piping; basic adjustments (with focus on heating and plumbing or ventilation); oil heating and oil burner installations; renovation of heating, plumbing and ventilation systems; special pipings; swimming pool equipment and water quality; ground maintenance; high temperature insulation; ship insulation; IT applications in building maintenance technology; electrification of heating, plumbing and ventilation equipment (equivalent to two modules).*

Optional modules may be replaced with one of the following extensive modules that has not already been taken: *sheet metal work and basic installations; ventilation installations; heating and plumbing installations; welding technology; maintenance of heating, plumbing and ventilation systems; general property work; insulation of building maintenance technology equipment; industrial insulation.*

Those who have completed the qualification may work in the installation, repair and maintenance of heating, plumbing and ventilation equipment in buildings, as technical insulators of heating, plumbing and ventilation and industrial pipings and equipment or as property managers responsible for the functioning of property technology, depending on their chosen specialisation area.

Vocational Qualification in Construction

The qualification involves specialisation in construction, infrastructure construction and earthmover operation.

The compulsory modules of the specialisation area in construction are *basics of construction, carcassing work and construction engineering.* Two of the following optional modules must also be taken: *masonry, tiling and plastering, foundations and carcassing carpentry, interior carpentry and concreting and reinforcing.* In addition, 10 credits from the modules listed below must also be taken.

The compulsory modules of the specialisation area in infrastructure construction are *basics of construction, hydraulic engineering and earthwork, civil engineering, road construction and road maintenance.* 10 credits from the modules listed below must also be taken as optional modules.

The compulsory modules of the specialisation area in earthmover operation are *basics of construction, hydraulic engineering and earthwork, earthmover technology, earthmover operation and traffic engineering.* 10 credits from the modules listed below must also be taken as optional modules.

The optional 10 credits must be chosen from the following modules: *masonry (10 credits), tiling and plastering (10 credits), foundation and carcassing carpentry (10 credits), interior carpentry (10 credits), concreting and reinforcing (10 credits), renovation (5 credits), log construction (5 credits), road construction (10 credits), road maintenance (10 credits), basics of property maintenance (5 credits), waterproofing (5 credits), steel construction (5 credits), lorry technology (5 credits), business and information*

technology in infrastructure construction (5 credits), *construction and utility equipment* (5 credits).

Those who have completed the qualification have extensive basic skills to work in assignments according to their specialisation within the construction and building materials industries, for the local authorities and the state and as independent entrepreneurs.

Vocational Qualification in Land Surveying

The compulsory modules of the qualification are *surveying and cartography*, *cadastral tasks* and *land use and construction*. Four of the following optional modules must also be taken: *cartographical tasks* (equivalent to two modules), *cadastral surveys*, *road construction and redemption surveys*, *community development and construction*, *town and country planning*, *special measurements* and *photogrammetry*.

Those who have completed the qualification possess basic skills and knowledge in land surveying, map production, geographical information, the formation and registration of cadastral units, land-use planning and community development and construction plans and measurements. They may work in property, surveying and map production assignments for state and municipal organisations and for private companies specialising in surveying, map production, land-use planning and soil investigations.

Further Qualification in Building Construction

The common module of the qualification is *basic knowledge of building construction*. In addition, three of the following modules must also be selected (those marked with an asterisk * are equivalent to two modules): *building measurements*, *foundation earthwork*, *in-situ formwork*, *formwork systems*, *prefabrication of reinforcing elements*, *concrete reinforcement**, *concreting*, *concrete topping work*, *concrete repairs*, *installation of precast concrete elements*, *timber frame work*, *manufacturing prefabricated wooden elements*, *fitting prefabricated wooden elements*, *carpentry repairs**, *timber claddings*, *log construction*, *fitting doors and windows*, *window repairs and maintenance**, *partitioning*, *interior carpentry*, *ceiling work**, *ashlar and small unit masonry*, *fireplace masonry*, *flue masonry*, *plastering*, *tiling*, *water-proofing in wet spaces*, *water-proofing**, *heat and moisture insulation*, *roofing*, *steel frame work*, *installation of metal-frame elements*, *installation of steel sheet structures*, *mechanical crane installation work*, *tower crane operation**, *electrical crane installation work*, *renovation work**, *scaffolding work*, *annual and warranty repairs**, *preparatory work*, *site services*, *site cleaning*, *flexible sealing**, *asbestos work*, *diamond cutting*, *water jet cutting*, *workplace instruction*, *a module from the specified Further Qualifications*. In addition, all candidates may also take the *entrepreneurship* module.

Candidates must be aware of the operational policies of construction companies and the operations of their own company. They must be familiar with the most important customers and requirements on operational quality and reliability. They must be familiar with the machinery and equipment used, the most common building materials and the cost structure and costs in the field. They must understand safety and environmental risks. They must understand building physics. They must be familiar with the workings of the labour market and understand the principles of labour legislation and the relevant collective agreement.

In addition, candidates must command the vocational skills requirements of their chosen qualification modules. They must know how to plan the necessary working hours and procedure and possible materials. They must be able to choose correct and appropriate tools, machinery,

equipment and scaffolding. They must know how to perform work safely, swiftly and to a high quality standard.

Those who have completed the qualification may work on construction sites in assignments conforming to their chosen qualification modules.

Further Qualification in the Building Products Industry

The common modules of the qualification are *knowledge of business and working environments* and either *knowledge of materials* or *production management and maintenance management*.

The qualification comprises six competence areas: manufacturing of concrete products, manufacturing of ceramic products, manufacturing of mineral-based building insulation materials, manufacturing of mineral-based building boards, manufacturing of basic materials and manufacturing of pressed building blocks. In addition, candidates must take the optional modules included in their competence area as follows. Those marked with an asterisk (*) are equivalent to two qualification modules.

In the competence area in manufacturing of concrete products, three of the following modules must be chosen: *production of fresh concrete**, *production and handling of moulds**, *mould assembly*, *concrete reinforcement**, *prestressing*, *operation of placing equipment and machine tools*, *concrete placement*, *surfacing and finishing*, *materials logistics*, *precast concrete logistics*, *concrete production control* and *concrete pumping**.

In the competence area in manufacturing of ceramic products, two of the following modules must be chosen: *paste preparation*, *pressing and shaping*, *drying*, *loading*, *firing*, *unloading* and *stacking*.

In the competence area in manufacturing of mineral-based building insulation materials, three of the following modules must be chosen: *melting**, *fiberisation and collection*, *curing and cooling*, *coating and cutting*, *packing and product control**, *manufacturing of mineral wool** and *quality control of building insulation materials**.

In the competence area in manufacturing of mineral-based building boards, two of the following modules must be chosen: *screening*, *crushing and grinding*, *mixing*, *board production*, *drying and sawing*, *coating and cutting or other machining*.

In the competence area in manufacturing of basic materials, three of the following modules must be chosen: *mixture preparation*, *firing and cooling*, *screening*, *crushing*, *grinding and grading**, *grinding*, *flotation and filtering** and *quality control of dry products*.

In the competence area in manufacturing of pressed building blocks, two of the following modules must be chosen: *mixing*, *mould handling*, *reinforcement*, *operation of placing or pressing machinery*, *curing*, *cutting or machining*.

Those who have completed the qualification may work in plants and enterprises manufacturing building materials in assignments relevant to their own competence area.

Further Qualification for District Heating Fitters

The modules of the qualification are *basics of district heating technology*, *district heating plants*, *district heating networks* and *customers' district heating equipment*.

Candidates must be familiar with the quantities and production methods used in district heating technology as well as with safety and environmental regulations governing the field. They must

be capable of working in an economical, high-quality and customer-focused manner both independently and as part of working communities.

Candidates must be familiar with the operations of district heating centres, networks and customer equipment. They must be able to operate, service and repair these and command the units of measurement, quantities and nomenclature generally used in the field.

Candidates must be familiar with boilers and fuels used in district heating plants. They must be able to operate the control systems of heating centres, networks and customer equipment. They must command the main principles of adjusting district heating networks and the purposes and servicing of different types of wells. They must be familiar with the basics of hydrochemistry and flow technology required for water treatment in district heating.

Candidates must possess the vocational skills required in repair welding and command joining methods and techniques related to insulation elements. They must be familiar with the principles of and equipment used in calorimetry. They must be familiar with the operations of heat exchangers, control devices and other auxiliary equipment and must be able to service and adjust these.

Those who have completed the qualification may work in construction, operating and maintenance assignments in heating centres, district heating networks and heat distribution centres for properties.

Further Qualification for Floor Layers

The common module of the qualification is *general skills for floor layers*. In addition, candidates must take one of the following modules: *fitting plastic coverings, parqueting, fitting ceramic and stone coverings*. They may also select some of the following modules, as required: *laminated covering and parqueting, linoleum covering, water-proofing with plastic coverings, composite floors and floor coating, fitting liquid water-proofing compounds, fitting textile coverings, sports and flexible floors, parquet and wooden floor repairs and renovation and wood stair covering and special paving*. In addition, it is also possible to take the optional *entrepreneurship* module. In order to complete the qualification, candidates are required to take a total of four modules.

People working in the occupational field in floor laying specialise in plastic and equivalent coverings, parqueting and wooden coverings or ceramic tiling, depending on the materials that they use.

Candidates must command basic knowledge required for floor laying occupations and be able to accomplish the key floor laying assignments in their chosen specialisation area under the guidance of supervisory personnel. These include inspections and pretreatments of underlays made from a variety of materials and removals of old coverings and coatings. Candidates must be familiar with the most common covering materials and know their applications and the conditions that they require. They must know how to use and service machinery, equipment and tools used in their work.

Candidates must command the basic work assignments of their chosen specialisation area. They must be familiar with the materials that they use and the groundwork required by these and know how to carry out routine covering and coating work, including installation of skirting.

Those who have completed the qualification are capable of working in business enterprises or industrial plants in assignments requiring vocational skills in the field, such as floor laying and water-proofing of wet areas.

Further Qualification for Commercial Divers

The common modules of the qualification are *basic diving skills*, *inspection diving* and *basic professional diving skills*. In addition, three of the following modules must also be chosen: *foundation engineering*, *formwork, concreting and reinforcing*, *installation of prefabricated units and caissons*, *pipefitting and cable laying*, *steel construction*, *renovation*, *lifting work* and *entrepreneurship*.

The Further Qualification for Commercial Divers includes the Qualification for Light Divers, which consists of a common module, *basic diving skills*, and one of the following modules: *inspection diving*, *archaeological diving* and *scientific diving*.

Divers must satisfy the physical and mental health requirements of the field.

Candidates must be familiar with the history and theory of diving. They must be familiar with safety regulations, occupational health and safety standards and safety risks within their field and must know how to prevent risks. They must understand the operating principles of their business enterprise and their own roles and responsibilities within the organisation. They must have an overview of underwater work as a whole, including job descriptions, responsibilities and division of work.

Candidates must know how to dive using surface-supplied diving systems and dry suits. They must understand the basics of scuba diving and diving physiology and use of a decompression chamber. They must know how to scuba dive safely in summer and winter conditions. They must know how to use a high-pressure compressor and how to fill air bottles. They must be familiar with diving gear and regulations governing equipment. They must know how to preserve, store and transport diving equipment safely.

Candidates must understand occupational hazards. They must be able to interpret documents relating to the field and must command the necessary dive tables and related calculations. They must be able to draw up a dive safety plan and to take appropriate action in dangerous situations.

Candidates must know how to set up an underwater site. They must be familiar with typical underwater structures and inspection points, maps and the basics of architectural history. They must be familiar with building regulations, materials, methods, techniques, quality requirements and the code of building practice. They must be familiar with maritime statutes and diving instructions and with the operations of a diving team on a small craft. They must be familiar with the basics of marine radio communications. They must command underwater working methods and know how to use the required underwater tools and equipment. They must be familiar with underwater camera and video systems and know how to use these for documentation purposes.

Candidates must know how to carry out underwater inspections, measurements and positioning. They must understand symbols and contents of drawings and other design documents. They must know how to document their work and draw up the required reports. They must know how to price their work.

Candidates must be able to perform and supervise small-scale installation and auxiliary assignments. They must possess the skills and knowledge required for hot work and occupational safety cards. They must also possess the skills and knowledge required in the Antiquities Act and for the Nautical Archaeology Society (NAS) Part 1 Certificate in Foreshore and Underwater Archaeology.

Candidates taking the archaeological diving module must command legislation relevant to the field. They must command terminology used in the field. They must be familiar with types of antiquities and with the principles, methods and equipment involved in conservation, inventory

and dating. They must know how to draw up permit applications and plan and lead underwater measures.

Candidates taking the scientific diving module must have sufficient knowledge of microscopic species of animals and plants and geological formations. They must command sampling, observation, treatment and further processing methods used in natural sciences. They must understand the principles of making use of remote sensing techniques and must know how to assist in taking oblique-incidence sounding measurements.

Candidates taking the foundation engineering, formwork, concreting and reinforcing, installation of prefabricated units and caissons, pipefitting and cable laying, steel construction, renovation or lifting work modules must know how to carry out underwater measures required for their work in accordance with their plans and measurements.

Those who have chosen the entrepreneurship module must command the knowledge and capabilities required to set up and run a business.

Those who have completed the qualification may work as divers in special assignments within the construction and manufacturing industries, power plants and the lake and maritime transport sector.

Further Qualification in the Construction Industry

The common modules of the qualification are *contractual techniques and regulations, supervisory and negotiation skills, occupational safety and environmental protection and plan management*. In addition, one of the following modules must be selected: *task planning and production control or field-specific construction and production technology*. Three of the following modules must also be selected: *cost planning and control, computer-assisted cost planning, schedule planning and control, computer-assisted scheduling, purchasing and logistics, quality control, commissioning of building maintenance technology, labour legislation and knowledge of employment relationships, co-ordination of construction and building maintenance technology, customer service and marketing, principles of supporting and bracing load-bearing structures, management of site conditions and production use of CAD software*. In addition, it is also possible to select the *entrepreneurship* module.

Candidates must be familiar with agreements and regulations in the field and occupational safety legislation. They must be familiar with the field's concepts and operating models as well as the effects and risks involved in various forms of contracting.

Candidates must be familiar with the principles of management and recognise reasons for people's behaviour, being able to react appropriately. They must know how to lead and develop teamwork and co-operate with other parties at the site. They must command negotiation situations with different people.

Candidates must be able to handle site logistics and waste management as required to obtain the occupational safety card. They must be able to check drawings and plans, launch a plan review and supervise implementation of agreed points. They must know how to archive and distribute planning documents.

Candidates must command skills and knowledge of their chosen modules. Among other things, they must know how to draw up task plans and control production. They must be able to function in supervisory positions in their field and choose the working method, tools and schedule best suited to each specific assignment in their field. They must be able to work safely and to a high quality standard. They must be capable of using equipment and machinery required at work in an appropriate manner.

Those who have completed the qualification may work on construction sites in supervisory positions and manage implementation of individual building engineering tasks.

Further Qualification for Heating Equipment Fitters

The common module of the qualification is *electrical work in heating equipment fitting*. In addition, candidates must choose one module from group 1 and one module from group 2. The optional module in group 2 may be replaced by taking another module from group 1. Group 1: *oil heating equipment*, *gas heating equipment* and *wood pellet heating equipment*. Group 2: *solar heating equipment*, *heat pump heating equipment* and *entrepreneurship*.

The optional module in group 2 may also be replaced with a module of some other Further or Specialist Qualification that extends vocational competence required in the field. However, this may not be a module focusing on basic skills in the qualification in question (basic skills and knowledge in the field or equivalent).

Candidates must be able to carry out electrical work relating to heating equipment safely, using correct tools and working methods. They must be able to interpret electrical drawings and diagrams and to document their work. They must command the basics relating to the locations of oil, gas, wood pellet and heat pump heating equipment used in one-family homes and be aware of the structural solutions of different components of the systems. They must be aware of the colour coding systems of conductors from different periods. They must command connections and protective earthing of different devices. They must hold a valid certificate for the Electrical Safety Code Examination 3.

When carrying out installations of various heating systems, candidates must know how to assemble, install, connect and service systems according to their chosen modules. They must know how to carry out pipefitting and metalwork, read drawings of devices, equipment and systems and document their work. They must know how to justify their technical installation solutions by means of statutes, recommendations and guidelines governing the field.

Those who have chosen the entrepreneurship module must be familiar with their own entrepreneurial qualities and be aware of the requirements and obligations involved in entrepreneurship.

Those who have completed the qualification may work in installation, repair and servicing assignments related to heat supply and distribution systems of properties.

Further Qualification for Industrial Pipefitters

The modules of the qualification are *general skills of an industrial pipefitter*, *basic skills in pipe manufacturing* and *pipefitting*. In addition, it is also possible to take the *entrepreneurship* module.

Candidates must be familiar with the business idea, values, objectives and operating principles of the business enterprise that they represent. They must be familiar with the enterprise's environmental programme and operating principles, take the effects of the work on the working environment into account and see to the necessary protection. They must be familiar with the enterprise's occupational safety instructions and regulations and the safety regulations governing tank work. They must hold a valid pass required to carry out hot work. They must be familiar

with personal protective equipment and know how to use different forms of protection correctly. They know how to proceed in the event of accidents and to perform first aid measures conforming to first aid level 1.

Candidates must be aware of the price formation of work and its effects on total costs. They must commit themselves to the assignments that they take on and assume responsibility for their results. They must work in accordance with the requirements of the quality systems used at the workplace. They must be familiar with the customer-focused business process and take individual customer needs into account in their actions. They must possess the basic skills required for site negotiations. They must be familiar with a delivery agreement in general and with delivery times and deadlines, penalty limits and the terms and conditions of force majeure in particular.

Candidates must be familiar with the symbols and graphic signs used on piping diagrams and with the raw material markings in part lists and pipe markings. They must be familiar with the applications of different measuring devices and be able to use them to take measurements. They must be able to determine the mass of a piece to be lifted, the centre of the mass and the suitable lifting points and to select equipment suitable for lifting or transfer. They must be able to select the correct cutting method for pipe cutting. They must be able to use pipe bending equipment and machinery and to shape pipes. They must be able to perform gas welding tasks (311) on small pipes by means of leftward welding. They must possess at least the European Fillet Welder's Diploma of the EWF (European Welding Federation) for their chosen welding process and base material category. They must be familiar with the manufacture of piping joint parts and piping supports, the marking of piping parts, heat and surface treatments and with the planning and assembly work related to test assembly. They must be aware of the demands placed on protection by the transportation and storage of piping parts.

Candidates must be able to read structural drawings and be capable of determining fitting points, the installation as a whole and the scope of delivery from layout drawings. They must be able to plan the order of installation and lifting and transfer tasks in accordance with occupational safety requirements. They must be familiar with installation measurements, compensation for thermal expansion, valves and their regulatory devices, supports and their installation and with the preparation of welding joints at the installation site. They must be able to fit piping and measurement devices and to perform pressure tests, inspections and testing tasks.

Those who have completed the qualification may work in assignments related to the prefabrication of piping parts, fitting and equipping of piping and to inspections, commissioning and servicing.

Further Qualification in Infrastructure Construction

The compulsory module of the qualification is *knowledge of business and working environments*. Three of the following optional modules must also be taken (those marked with an asterisk * are equivalent to two modules): *earthmover operation**; *ploughing and surface levelling of traffic areas**; *anti-skid treatment of traffic areas*; *management of traffic areas*; *maintenance of traffic areas*; *measurements*; *3D positioning or control of earthmovers*; *drilling**; *loading and blasting**; *rock shotcreting*; *grouting*; *rock bolting*; *mesh reinforcement and subsurface drainage*; *stabilisation**; *pile driving**; *work relating to anchorage and bulkheads**; *steel structural work*; *manual infrastructure construction work*; *construction engineering work in infrastructure construction*; *demolition and sorting*; *heat and moisture insulation*; *yard construction*; *landscape development*; *environmental paving*; *civil engineering construction work**; *water supply and sewerage management and maintenance*; *dredging**; *asphalt mixture production**; *preliminary work for asphalt surfacing*; *laying*

asphalt surfacing; compacting asphalt surfacing; crushing; renovation work*; duties of a workplace instructor; a specified module from some other Further Qualification.* In addition, it is also possible to take the *entrepreneurship* module.

Candidates must understand the organisational structure, ownership base, key indicators, policies and objectives of their business enterprise in general terms. They must be familiar with the most important customers and be able to work co-operatively and to a high quality standard. They must be familiar with the relevant machinery, basics of soil types, working methods and materials.

In addition, candidates must command the skills and knowledge of their chosen modules. Those taking the earthmover operation module must, among other things, know how to take basic measurements and use the measuring instruments of earthmovers. They must also know how to interpret drawings and plans.

Candidates taking the ploughing and surface levelling of traffic areas module must, among other things, understand the significance of weather and road conditions in their work. Those taking the anti-skid treatment of traffic areas module must be familiar with different anti-icing materials and agents and the applications of these, among other things. Those taking the management of traffic areas module must be familiar with materials relating to maintenance of traffic areas and their uses, among other things. Those taking the maintenance of traffic areas module must know how to treat road damage caused by frost, maintain culverts, subsurface drains, gullies and drains and to attend to cleaning of bridges and noise barriers.

Candidates who have chosen the measurements module must, among other things, know how to carry out measurements on infrastructure construction sites using basic measuring instruments, automatic levels and laser levels. Those who have chosen the 3D positioning or control of earthmovers module must understand the principles of 3D surveying, tacheometry and satellite surveying and digital 3D terrain modelling. Those who have chosen the drilling module must know how to drill according to written plans, among other things. They must also know how to carry out measurements and quality assurance measures and to provide blasters with information about the properties of rock. Those taking the loading and blasting module must, among other things, know how to carry out loading and blasting work according to written plans. They must know how to apply information received from drillers to their plans.

Candidates who have chosen the rock shotcreting module must, among other things, know how to carry out shotcreting to a high quality standard, using the wet-mix or dry-mix process. Those taking the grouting module know how to carry out cement and chemical grouting and to mix the cement additive according to formulae. Those taking the rock bolting, mesh reinforcement and subsurface drainage module must know how to make rock underdrains, install mesh reinforcements and bolt manually or mechanically.

Candidates who have chosen the stabilisation module must, among other things, know how to carry out stabilisation work such that the pillars satisfy the specified requirements. Those who have chosen the pile driving module must know how to carry out all stages of pile driving. Those who have chosen work relating to anchorage and bulkheads must, among other things, perform anchoring tasks as part of a crew and to make and dismantle bulkheads.

Candidates who have chosen steel structural work must, among other things, carry out structural steel work as part of a crew, using correct materials and working methods. They must know how to use different types of steel materials and to carry out welding and flame-cutting operations. Those who have chosen the manual infrastructure construction work module must, among other things, know how to carry out manual excavation, filling, levelling and compacting work and to install culverts, gullies and pipes.

Candidates who have chosen construction engineering work in infrastructure construction must, among other things, make in-situ concrete structures. Those who have chosen the demolition and sorting module must, among other things, know how to demolish a wide variety of structures and sort demolition waste. Those who have chosen the heat and moisture insulation module must know how to install heat and moisture insulation using appropriate materials and correct working methods. Those taking the yard construction module must, among other things, know how to make and maintain environmental structures and green areas in working groups, also mechanically. Those taking the landscape development module must, among other things, know how to design landscape development work and plant plants. Those who have chosen the environmental paving module must, among other things, know how to lay stone and tile paving in yards and paths. They must know how to carry out groundwork and measurements for paving.

Candidates who have chosen the civil engineering construction work module must, among other things, know how to carry out work relating to pipeline construction. Those taking the water supply and sewerage management and maintenance module must know how to carry out typical work assignments required for management of water and sewerage systems. Those who have chosen the dredging module must know how to perform tasks relating to dredging work.

Candidates taking the asphalt mixture production module must know how to produce correct mixtures in accordance with instructions and convert instructions into values fed into the mixing plant. Those taking the preliminary work for asphalt surfacing module must, among other things, know how to finish the subgrade. Those who have chosen the laying asphalt surfacing module must, among other things, know how to carry out finishing tasks of the subgrade and asphalt surfacing. Those who have chosen the compacting asphalt surfacing module must, among other things, know how to independently carry out tasks assigned to them as part of a crew. Those taking the crushing module must, among other things, know how to produce crushed materials and perform process adjustments. Those taking the renovation work module must know how to perform small-scale welding and basic flame-cutting work and on-site electrification tasks during projects. Those taking the duties of a workplace instructor module must know how to provide instruction and orientation for students, trainees or workers who have recently changed occupations.

It is also possible to include one module from another Further Qualification as part of the Further Qualification in Infrastructure Construction. Those who have chosen the entrepreneurship module must be aware of the requirements and obligations involved in entrepreneurship.

Those who have completed the qualification may work in skilled positions in infrastructure construction.

Further Qualification for Property Maintenance Operatives

The qualification comprises three compulsory modules: *basic property maintenance skills and knowledge*, *maintenance and servicing of heating and plumbing systems* and *maintenance and servicing of buildings*. In addition, one of the following modules must also be taken: *maintenance and servicing of environments*, *maintenance and servicing of air-conditioning systems* or *entrepreneurship*.

Candidates must be familiar with the basics of property maintenance and with relevant agreements, employment issues and occupational health and safety considerations and with the economics

and administration of real estate. They must be able to deal with maintenance, servicing and repairs of environments in different seasons.

Candidates must command servicing tasks and routine repairs of heating equipment in oil-heated properties and in those connected to district heating systems. They must be familiar with the water and sewerage systems of properties and with the functioning of individual water supply fittings and must be able to service and repair these. They must be familiar with the operating principles of the most common air-conditioning systems, the functions of ventilation machinery and know how to service these systems. They must be able to perform routine repair paintwork and surface repairs of a property and the adjustment, servicing and repair tasks related to the functioning of doors, windows and locks. They must be familiar with refrigeration equipment used in the cold-storage room of a property, the basics of electrical engineering and with the main operating principles of heating, plumbing and ventilation systems and access control equipment.

Those who have completed the qualification may work in maintenance, servicing and repair assignments at properties.

Further Qualification for Pipefitters

The modules of the qualification are *basic pipefitting skills and knowledge, heating plumbing systems and measuring and control engineering*. In addition, one of the following modules must also be taken: *pipefitting for fire-extinguishing systems, pipefitting for oil heating systems or pipefitting for pneumatic systems*.

Candidates must be able to fit plumbing and heating systems and equipment independently and to measure, adjust, service and repair heating and plumbing equipment. They must possess basic knowledge of the raw materials used, their technical properties and suitability for various purposes and of metal, electrical and construction engineering.

Candidates must be familiar with heating, plumbing and ventilation diagrams and construction drawings and must be able to interpret plane and cross-section drawings, diagram drawings and work specifications and to prepare parts lists on the basis of drawings and work specifications. They must know how to schedule and localise pipefitting work as part of construction projects and to carry out their work assignments so as to avoid causing unnecessary delays. They must be able to determine the quality required of the work and each product and to achieve the required standard of quality. They must be able to avoid extra costs arising from exceeding the specified quality requirements.

Depending on their chosen specialisation area, they must be able to perform pipefitting, servicing and repair tasks on fire-extinguishing, oil-heating or pneumatic systems.

Those who have completed the qualification are equipped to work in demanding fitting, repair and servicing assignments in the heating and plumbing field.

Further Qualification in Refrigeration Fitting

The modules of the qualification are *fitting, start-up and adjustment of refrigeration equipment; refrigeration equipment repairs and maintenance; refrigerant handling and legislation and connection and replacement of electrical machinery and equipment*. In addition, it is also possible to take the *entrepreneurship* module.

Candidates must know how to install, set up and adjust refrigeration plants independently and

appropriately and to repair and service refrigeration equipment. They must be able to read drawings and diagrams, choose correct working methods, tools, materials and supplies and use these economically. They must be capable of using technical documents, source materials, measuring equipment and machinery needed in their work. They must be co-operative and able to guide customers in use of the equipment.

Based on work instructions, candidates must know how to install compressors, condensers, evaporators and other refrigeration equipment parts and to assemble pipe systems, including the necessary structures and parts. They must understand the operations of equipment parts, refrigeration solutions related to piping assembly and the significance of the tightness and cleanliness of the equipment. They must know how to carry out metalwork, take leak tests, search for and repair leaks and evacuate equipment and perform refrigerant and oil filling tasks according to regulations. They must know how to set up equipment and adjust it. They must be able to determine the operations of refrigeration equipment and the necessary servicing measures and know how to service and adjust equipment. They must know how to determine the nature and location of malfunctions, the required repairs and carry out post-repair inspections.

Candidates must comply with official regulations, standards and occupational safety instructions governing their field. They must hold valid hot work and occupational safety passes and the first aid 1 card. They must know how to connect and replace electrical machinery and equipment and they are required to have completed the Electrical Safety Code Examination 3.

Those who have completed the qualification may undertake fitting, adjustment, operation, troubleshooting, repair and servicing assignments involving refrigeration equipment.

Further Qualification in Technical Design

The seven compulsory modules of the qualification are *basics of technical drawing; basics of construction engineering; basics of heating, plumbing and ventilation engineering; basics of electrical engineering; computer-aided design (CAD); office technology and entrepreneurship and a foreign language*. One of the following specialisation modules must also be taken: *construction engineering drawing; heating, plumbing and ventilation drawing; electrical drawing*. One of the following optional modules must also be taken: *3D drawing, desktop publishing software*.

Candidates must be familiar with drawing implements and materials, symbols complying with standards and recommendations, line widths, line types and paper sizes. They must know how to search for guidelines and regulations related to construction from building sector manuals, standards and guidelines. They must be familiar with the most common construction materials and their application methods. They must be familiar with the principles of the structures of the most common heating, plumbing and ventilation systems used in properties and with the standard drawing methods used in their design and in electrical installation plans of properties. They must know how to draw simple construction drawings, heating, plumbing and ventilation drawings and electrical plans of properties on the basis of guidelines and drafts and to use one popular CAD application. They must be able to use modern office data transfer equipment and command information technology at the level required for the computer user's driving licence. They must be capable of drawing up documents that conform to standards and of archiving documents. They must be familiar with the basics of entrepreneurship and understand the significance of the customer-focused approach of their work. They must be capable of working independently and as part of groups. They must be able to translate and interpret short texts in

a foreign language found in sector manuals and guides with the aid of a dictionary. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification are qualified to assist with planning and design work at planning agencies specialising in construction, heating, plumbing and ventilation or electrical engineering.

Further Qualification in Technical Insulation

The modules of the qualification are either *industrial insulation* or *building maintenance insulation*. At least two of the following modules must also be taken: *cold insulation*, *fire insulation*, *sound insulation*, *ship insulation*, *high temperature insulation*.

Candidates must command the basics of the raw materials of technical insulation, their characteristics, handling methods and suitability for various applications. They must be familiar with the general codes, graphical symbols, standards and regulations used in insulation and be able to service and repair insulation. They must be able to fasten, support and fit insulation materials and coverings independently. They must possess the welding and sheet metal work skills required in the sector. They must be familiar with the basics of entrepreneurship, labour legislation and work contracts and also be able to cope with English-language work instructions, using a dictionary. They must also command ordinary tasks in their chosen modules.

Those who have completed the qualification can work in demanding insulation and covering assignments. Further Qualification for Pipefitters

The modules of the qualification are *basic pipefitting skills and knowledge*, *heating, plumbing systems* and *measuring and control engineering*. In addition, one of the following modules must also be taken: *pipefitting for fire-extinguishing systems*, *pipefitting for oil heating systems* or *pipefitting for pneumatic systems*.

Candidates must be able to fit plumbing and heating systems and equipment independently and to measure, adjust, service and repair heating and plumbing equipment. They must possess basic knowledge of the raw materials used, their technical properties and suitability for various purposes and of metal, electrical and construction engineering. They must be familiar with heating, plumbing and ventilation diagrams and construction drawings and must be able to interpret plane and cross-section drawings, diagram drawings and work specifications and to prepare parts lists on the basis of drawings and work specifications. They must know how to schedule and localise pipefitting work as part of construction projects and to carry out their work assignments so as to avoid causing unnecessary delays.

Depending on their chosen specialisation area, they must be able to perform pipefitting, servicing and repair tasks on fire-extinguishing, oil-heating or pneumatic systems.

Those who have completed the qualification are equipped to work in demanding fitting, repair and servicing assignments in the heating and plumbing field.

Further Qualification for Ventilation Pipefitters

The qualification comprises three options and candidates must take the modules required in their chosen option.

The common modules for those who have chosen option 1 are *basic ventilation fitting skills and knowledge* and *manufacturing of duct parts*. In addition, one of the following modules must also

be chosen: *basic duct and equipment installation work, basic air flow measurement and control work, connection and replacement of electrical machinery and equipment and entrepreneurship.*

The common modules for those who have chosen option 2 are *basic ventilation fitting skills and knowledge and duct and equipment installation.* In addition, one of the following modules must also be chosen: *basic duct part manufacturing work, basic air flow measurement and control work, connection and replacement of electrical machinery and equipment and entrepreneurship.*

The common modules for those who have chosen option 3 are *basic ventilation fitting skills and knowledge and air flow measurement and control.* In addition, one of the following modules must also be chosen: *basic duct part manufacturing work, basic duct and equipment installation work, connection and replacement of electrical machinery and equipment and entrepreneurship.*

One of the optional modules may be replaced with a module of some other Further or Specialist Qualification. However, this may not be a module testing basic skills (basic skills and knowledge or equivalent) or included in a compulsory module of the Further Qualification for Ventilation Pipefitters.

Candidates taking the basic ventilation fitting skills and knowledge module must possess sufficient occupational safety skills and abilities to function in working communities and environments and they must know how to work economically and to a high quality standard. They must be able to read working drawings and work accordingly. They must be familiar with materials, their properties and machining requirements. They must command measuring tasks and calculation methods of blank dimensions. They must be able to perform lifts and transfers safely. They must be able to choose the correct tools and working methods for grinding, drilling and threading work. They must be familiar with ventilation technologies and elements of indoor climate. They must command the basics of insulation, site practices and construction engineering, the most common electrical technologies used in ventilation and corrosion protection techniques.

Candidates taking the manufacturing of duct parts module must command spot and seam welding and they must know how to cut using sheet shears, guillotine shears, profile cutting machines, nibblers and plate shears. They must know how to use bending rolls, press brakes and folding and seaming machinery appropriately. They must know how to seam, prepare fittings and duct parts and assemble duct parts.

Candidates taking the duct and equipment installation module must know how to mount supports and install different types of ducts independently. They must command the operating principles of ventilation machinery and terminal devices and know how to install these and perform leak tests.

Candidates taking the air flow measurement and control module must know how to independently measure, control and balance air flows and perform the required calculations. They must also command sound and temperature measurements and adjustments. They must be able to interpret schematic diagrams and to document measurements.

Candidates who have chosen the connection and replacement of electrical machinery and equipment module must know how to carry out electrical work relating to ventilation.

Those who have chosen the entrepreneurship module must be able to assess their own entrepreneurial potential and acquire information about business opportunities and the market situation in their field and about establishing and running a business.

Those who have completed the qualification may work in highly skilled installation, servicing and repair assignments of ventilation systems.

Further qualification in Ventilation System Cleaning

The qualification comprises the following common modules: *basic skills and knowledge of cleaners* and *ventilation system cleaning*. In addition, one of the following modules must also be selected: *air flow measurements and balancing, ventilation system maintenance, connection and replacement of electrical machinery and equipment*.

In addition, candidates are free to incorporate the *indoor climate measurements* and *entrepreneurship* modules within their qualification.

Candidates must know how to work economically and to a high quality standard and provide customer service. They must be acquainted with environmental and occupational safety regulations and with legislation, regulations and recommendations governing the field. They must command information systems and know how to use information technology. They must know how to interpret, use and revise drawings, diagrams and specifications.

Candidates must be familiar with the characteristics of good ventilation, indoor climate classes and the basics of ventilation. They must know how to check the working order of a ventilation system, set the system up and service systems and their parts. They must be familiar with the operating principles of air-conditioning systems and equipment. They must be able to carry out fire inspections. They must be able to assess the cleanliness and cleaning needs of ventilation systems. They must know how to use correct cleaning methods, agents and equipment in their work. They must be able to take customer needs into account and prepare the necessary documentation in their work.

Candidates must know how to install cleaning access doors, to evacuate ventilation ducts, to clean air supply and exhaust ducts and air supply, exhaust and circulation units and to replace filters. They must know how to clean terminal devices, various air distribution systems, convectors, chilled beams and grease ducts. They must know how to disinfect air-conditioning systems and be capable of performing servicing tasks during cleaning work and carrying out routine sheet-metal work. They must attend to waste and waste treatment and to cleaning and maintenance of cleaning equipment.

Depending on their chosen qualification modules, candidates must command areas such as air flow and indoor climate measurements. They must know how to set up, service and calibrate measuring equipment. They must know how to assess the air change rate, perform tracer smoke tests, leak tests and carbon dioxide measurements. They must know how to measure the total air flow rate of an air-conditioning unit, air flow changes and pressure ratios and noise levels within a building. They must know how to service air-conditioning systems. They must know how to connect and replace electrical machinery and equipment.

Those who have completed the qualification may work in different assignments cleaning ventilation systems.

Further Qualification in Water Supply and Sewerage

The compulsory modules of the qualification are *knowledge of water supply and sewerage processes* and *knowledge of the sector*.

In addition, one of the following modules must also be chosen: *water supply and purification, sewage treatment* and *water supply, sewerage and drainage systems*. All candidates may also take the *entrepreneurship* module.

Candidates must understand the overall process of the water supply and sewerage sector. They must be able to use the necessary information systems. They must be able to read and interpret drawings, diagrams and other documents used in water supply and sewerage. They must be familiar with substances and materials used in their work and know how to use these properly. They must also be familiar with the operating principles of machinery and equipment.

Candidates must pass the plant technology and water hygiene test determined by the Ministry of Social Affairs and Health. They must obtain hot work and occupational safety cards.

Candidates must be familiar with key contents of labour legislation and laws and regulations governing water supply and sewerage. They must command customer service and advice. They must understand the principles of quality, safety and environmental thinking. They must be familiar with safety risks and know how to take these into account.

In addition, candidates must command the skills and knowledge of their chosen modules. Those who have chosen the water supply and purification module or the sewage treatment module must command processes relating to the specific area of work. They must know how to control the quality of water. They must be familiar with chemicals and know how to treat and dose these properly. They must know how to operate, adjust and service machinery, equipment and automation and information management systems relating to their assignments. They must also command other plant maintenance tasks relating to their work assignments. They must command reporting procedures.

Those who have chosen the water supply, sewerage and drainage systems module must, among other things, know how to carry out typical management, inspection, maintenance, construction and renovation tasks relating to water supply, sewerage and rainwater drainage systems as well as service piping work and tasks relating to water meters. Those who have chosen the entrepreneurship module must understand the requirements and prerequisites involved in setting up and running a business.

Those who have completed the qualification may work in different types of water supply and sewerage assignments.

Specialist Qualification in Building Construction

The qualification comprises two modules to be chosen from the following list: *foreman's work, advanced workplace instruction, advanced foundation work and earthwork, advanced concreting, advanced scaffolding work, advanced moisture and heat insulation, advanced renovations, advanced interior carpentry, advanced formwork, advanced carpentry repairs, advanced ceiling work, advanced log construction, advanced concrete topping work, advanced tiling, special plastering, ornamental masonry, masonry repairs, industrial masonry, advanced fireplace masonry, advanced concrete reinforcements, advanced water-proofing, advanced building measurements and advanced timber frame work*. In addition, it is possible to take the *entrepreneurship* module.

Candidates must be able to function independently in demanding assignments and supervisory duties. They must be able to ensure occupational safety and comply with drawings, design documents and regulations. They must be capable of assessing the schedule and costs for work and of planning the working procedure and amount of work for the crew. Where necessary, they must be able to choose the correct amounts and types of materials and apply proper working methods.

Candidates must be able to ensure the quality of their crew's work. They must be capable of

workplace instruction and guidance. They must be capable of performing their work in co-operation with other people working on the site. They must be able to carry out specialist assignments involved in their chosen module.

Those who have completed the qualification may work on construction sites in tasks according to their chosen qualification modules.

Specialist Qualification for Construction Site Managers

The qualification comprises the nine compulsory modules of *supervisory skills, site quality assurance, site schedule planning and monitoring, task planning, subcontracts, contracts of employment, occupational safety, command of contractual techniques* and *negotiation skills*.

Candidates must be aware of personal needs to develop supervisory skills, accept continuous development as part of their management behaviour and understand the effects of various situations on the management style. They must know how to plan and implement quality assurance measures for a specific project, which are practical and unambiguous and applicable both to the entire project and to individual tasks, and to communicate these requirements to those implementing the work.

Candidates must be able to select a form of schedule that is suitable for each individual project and to draw up a schedule that is appropriate for the supervision of the site, to make sure that it can be implemented and supervised and to monitor the implementation of the schedule. They must be able to draw up a plan related to an individual assignment designed to ensure that the time and cost objectives and quality requirements set for the assignment are achieved.

Candidates must know how to compile unambiguous materials delivery contracts and subcontracts, which take account of the considerations that are essential in terms of site supervision and the requirements of general contractual terms and conditions. They must be familiar with the contents of labour legislation and of the collective agreement in the construction sector and be able to apply them. They are able to draw up fixed-term contracts of employment for a working group and to price contracts in order for these to create the prerequisites for the successful implementation and supervision of the work.

Candidates recognise the occupational safety risks associated with the implementation of work and command their prevention. They must be familiar with the main contents of the occupational safety regulations for construction sites and be able to take risks and regulations into account in work planning. They must also be familiar with the terms and conditions of contracts for construction projects so as to be able to apply them, using typical procedures in possible problem situations.

Those who have completed the qualification may work on construction sites in demanding supervisory assignments and manage the implementation of work.

Specialist Qualification for District Heating Fitters

The qualification comprises the following common modules: *basics of district heating operations, district heating plants, district heating networks* and *customer-specific district heating equipment*.

In addition to these, it is also possible to take the following modules: *connection and replace-*

ment of electrical machinery and equipment and entrepreneurship. Award of the qualification certificate also requires candidates to hold the following valid certificates: the First Aid Certificate 1, the Road Safety Card 1 or 2, and the Occupational Safety Card.

Candidates must be familiar with district heat production methods. They must be familiar with the operations of district heating centres, networks and customer equipment and be able to operate, service and repair them. They must be familiar with quantities used in district heating technology, possess supervisory skills and be able to function in working communities. They must be familiar with the documentation generally used in the sector and be able to perform limited planning tasks.

Candidates must know how to work economically and to a high quality standard and be acquainted with environmental and occupational safety regulations and with legislation, regulations and recommendations governing the field. They must command information systems and know how to use information technology.

They must possess basic knowledge of boiler plants, the properties, combustion and handling methods of fuels and they must know how to operate the control systems of heating centres, networks and customer equipment. They must be familiar with the duct structures, materials and insulations of district heating networks and command the joining methods and techniques of prefabricated insulation units. They must possess the vocational skills required in repair welding and basic knowledge of flow technology and of the water chemistry required for processing water.

Those who have completed the qualification may work in highly skilled positions and in workplace instruction and supervisory assignments.

Specialist Qualification for Floor Layers

The compulsory modules of the qualification are *general skills of specialist floor layers* and *profitability and cost management in floor laying*. Candidates must also take one of the following optional modules of the qualification: *fitting plastic coverings, parqueting, fitting ceramic and stone coverings*. In addition to this, candidates must choose either *organisation and supervision of work* or *workplace instruction*. In addition to these, candidates must take one of the following optional modules of the qualification: *plastic covering techniques, laminate covering and parqueting techniques, slabbing techniques, composite coating techniques* or *operational planning*.

Candidates must be broadly familiar with surface treatment, coating and covering techniques related to floor surfaces of buildings. They must specialise in at least one covering technique so as to be able to function as supervisors or responsible senior craftspeople in their own assignment area.

Candidates must be able to use different coating and underlay materials according to their purpose, instructions for use and occupational safety regulations. They must be familiar with the composition of materials most commonly used in floor laying and be aware of the effects of any possible components that may be hazardous to health. They must know how to use and store materials properly and safely. In addition, they must be able to participate in planning floor laying techniques in their own specialisation area and be aware of the most important technical properties of materials used at work and the requirements set by structures and environmental stresses for different covering techniques. They must have an overview of managing business

finances and of factors influencing financial results. In addition, they must be capable of monitoring the progress of work and of supervising measures that influence the quality of work and occupational safety.

Those who have completed the qualification may undertake assignments requiring vocational skills for floor laying and coating businesses or as independent entrepreneurs.

Specialist Qualification in Infrastructure Construction

The common module of the qualification is *vocational skills requirements of the Further Qualification in Infrastructure Construction*. Two of the following optional modules must also be taken (those marked with an asterisk * are equivalent to two modules): *foreman's work*, *workplace instruction*, *measurements in infrastructure construction**, *bulk and special transport operations*, *excavation and blasting**, *versatility**, *entrepreneurship*.

Candidates must command the requirements of the Further Qualification in Infrastructure Construction, which are detailed under the specific qualification.

Candidates must know how to supervise and instruct their crew or team safely, according to objectives and to a high quality standard. They must know how to solve problems and command meeting practices. Candidates taking the foreman's work module must know how to draw up a works contract and put together a crew as required. They must know how to perform duties relating to keeping records of working hours and final contract accounting. When carrying out foreman's work, they must know how to plan working procedures and division of work.

Candidates must command workplace orientation, training and co-operation. They must be able to assess workers' and trainees' vocational skills.

Candidates who have chosen the measurements in the infrastructure construction module must, among other things, know how to prepare site measurement plans and perform measurements using different instruments. They must know how to use equipment and IT software diversely and competently as required.

Candidates who have chosen the bulk and special transport operations module must, among other things, know how to load and drive articulated vehicles. They must know how to operate vehicle and loading accessories safely and properly. They are required to hold a driving authorisation entitling them to carry out break-bulk transport operations under the terms of the ADR.

Candidates who have chosen the excavation and blasting module must, among other things, know how to function as blasting supervisors in inhabited areas. They must know how to prepare blasting plans and carry out loading and blasting work. In addition, they are required to hold a valid chief blaster certificate according to the Shotfiring Act (219/2000) and the Government Decree on Certification of Shotfiring (122/2002).

Candidates who have chosen the versatility module must take three optional modules from the Further Qualification in Infrastructure Construction that they have not completed earlier.

Candidates who have chosen the entrepreneurship module must be aware of the requirements involved in launching and running a business, recognise their own qualities and command their own field of activity.

Those who have completed the qualification may work in highly skilled positions in infrastructure construction.

Specialist Qualification for Pipefitters

The modules of the qualification are *basic pipefitting skills and knowledge, heating, plumbing systems, measuring technology and control engineering, pipefitting for compressed air systems, production skills and site operations*. In addition, candidates must take either *pipefitting for laboratory and hospital gas systems* or *pipefitting for heat recovery and cooling equipment*. In addition, it is also possible to take the *entrepreneurship* module.

Candidates must be familiar with the customer-focused business process and understand business operations. They must be familiar with accident risks and occupational health hazards typical of their working environment and must be able to implement the necessary safety and protective measures. They must be familiar with personal protective equipment and its uses and requirements.

Candidates must know how to use pipefitting raw materials and supplies economically. They must know how to perform work swiftly and to a high standard. They must be familiar with pipes and parts, insulation materials and coverings used in pipefitting and with the purposes and properties of these. They must command lifting and transfer work, the use of angle and bench grinders as well as drilling and threading work. They must know how to choose and mount supports for pipings and equipment and attach fixtures and fittings. They must be able to interpret flat layout and section drawings used in pipefitting and, based on these, know how to fit pipes and prepare parts lists. They must understand the most common electrical connections relating to pipefitting technology and be able to perform 'DIY'-level electrical work, taking the safety regulations of electrical equipment into account in their work. They must be familiar with key corrosion protection techniques and know how to use finishing and protection techniques in order to prevent corrosion. They must be familiar with the operating principles of ventilation equipment used in one-family houses and know how to install ventilation systems for one-family houses, including related insulation.

Candidates must be familiar with the operating principles of water district heating systems and other heating solutions. They must know how to install networks and equipment and to service and repair networks, equipment and fittings of ordinary water district heating systems. They must command gas, arc, MAG/MIG and TIG welding techniques.

Candidates must be aware of the heating and plumbing installations carried out at different stages of building projects and know how to install water and sewerage equipment at residential buildings independently. They must master brazing and soldering techniques. They must know how to repair and service equipment and fittings at residential buildings.

Candidates must be familiar with the operating principles of building maintenance control systems and know how to measure and adjust heating and water distribution systems and use the necessary measuring instruments and other equipment. They must command calculations required in measurements and be capable of applying the results of measurements. They must be familiar with the operating principles of compressed air systems and know how to fit pipings.

Candidates must be capable of acting in different customer service situations in a flexible manner. They must be capable of applying to their own work the contractual terms and practices used in trading within their field as well as the Consumer Protection Act and the Product Liability Act. They must be familiar with their business enterprise's quality and environmental systems and the key waste management regulations concerning their own work. They must be familiar with the most important effective regulations and guidelines of the Building Code of Finland that are relevant to their own field. They must possess basic knowledge of design and

dimensioning in their own field. They must know how to plan and supervise workplace operations efficiently.

Those who have completed the qualification are equipped to work in different types of demanding assignments within the heating and plumbing field.

Specialist Qualification for Property Maintenance Operatives

The modules of the qualification are *skills and knowledge of property maintenance operatives, life-cycle management of properties, production skills* and one of the following modules: *building automation, construction engineering or entrepreneurship*.

Candidates must be familiar with the customer-focused business process and command customer service. In addition, they must be familiar with the accident risks and occupational health hazards of their working environment and must be able to implement the necessary safety and protective measures. They must hold a valid pass required to carry out hot work and the first aid 1 card. They must know how to use tools, machinery and supplies needed in property maintenance in an economical and appropriate manner. They must be capable of performing work sufficiently swiftly and to a high standard and they must be able to take account of the effects of each specific working method on total costs.

Candidates must understand the operating principles of heating in oil-heated properties or those connected to district heating systems. They must be capable of operating and servicing heating equipment and command routine repairs. They must understand the operating principles of water district heating, be able to service dampers and valves connected to networks and know how to preset radiator valves and set thermostats. They must understand the operating principles of water and sewerage systems and be familiar with the functioning of plumbing fixtures and be capable of troubleshooting and repairing defects in these or of having the defects repaired.

Candidates must be familiar with the requirements of indoor climate and the factors of thermal comfort, understand differences between and operations of different ventilation systems, be familiar with air-conditioning controls and know how to carry out measurements to check factors influencing living conditions. They must know how to pinpoint defects in different parts of the air-conditioning process and know how to choose filters that are best suited to each specific application.

Candidates must be familiar with the operations of rainwater control systems and equipment and systems used in soil drainage. They must know how to service and repair door and window controls and equipment. They must be familiar with the basics of house painting and know how to carry out structural repairs to the interior and exterior surfaces of buildings. They must know how to repair defects resulting in moisture problems in building base floors. They must be able to perform seasonal upkeep and maintenance tasks. They must know how to drive property maintenance machinery and operate and service gear, equipment and machinery required in their work.

Candidates must understand the life cycle of a property and those of its buildings and structural elements as well as the effects of property maintenance on the property's life-cycle strategy. They must understand the operations of building automation and know how to perform the necessary adjustments. They must know how to read the most common construction and structural drawings, be familiar with operating principles and structural solutions relating to the

exterior covering, fire safety and sound insulation as well as renovation techniques. They must be capable of preparing cost estimates and know how to deal with negligence and deviations in building maintenance.

Those who have completed the qualification may undertake different types of demanding property maintenance assignments.

Specialist Qualification in Refrigeration Fitting

The modules of the qualification are *basic theoretical skills in specialist refrigeration fitting; refrigerant handling and legislation; managerial and interaction skills; refrigeration plant planning, tender costing and project management skills* and *connection and replacement of electrical machinery and equipment*. In addition, it is also possible to take the *entrepreneurship* module.

Those who have completed the qualification know how to plan refrigeration plants independently, including the necessary documentation. They command project costing, scheduling and resource allocation.

Those who have completed the qualification command the basics of physics and chemistry required in the field and possess sufficient language, IT and mathematics skills. They know how to handle refrigerants safely and command acts and other statutes relevant to their field. They know how to function in supervisory assignments and co-operate with other people. In their work, they comply with occupational safety and environmental legislation relevant to the field.

Those who have completed the qualification know how to connect and replace electrical equipment safely and are capable of operating modern control and monitoring systems.

Those who have completed the qualification may undertake different types of demanding project management, planning and supervisory assignments in the field.

Specialist Qualification for Ventilation Pipefitters

The qualification comprises two options. The compulsory modules of option 1 are *basic ventilation fitting skills and knowledge, duct and equipment installation, air flow measurement and control, production skills* and *site operations*. In addition, candidates must take either *basic duct part manufacturing work* or *cleaning of ventilation systems*. The compulsory modules of option 2 are *basic ventilation fitting skills and knowledge, manufacturing of duct parts, production skills* and *site operations*. In addition, candidates must take two optional modules either from group 1 or from group 2. Group 1: *duct and equipment installation, basic air flow measurement and control work* or *cleaning of ventilation systems*. Group 2: *air flow measurement and control, basic duct and equipment installation work* or *cleaning of ventilation systems*. It is also possible to take *duct and equipment installation* and *air flow measurement and control* as optional modules. In addition, it is also possible to take the *entrepreneurship* module.

Candidates must be familiar with the customer-focused business process and understand business operations. They must be familiar with the accident risks and occupational health hazards typical of their working environment and must be able to implement the necessary safety and protective measures. They must be familiar with personal protective equipment and its uses and requirements.

Candidates must know how to use raw materials and supplies used in ventilation economically. They must know how to perform work swiftly and to a high standard. They must be

familiar with ducts, duct parts, insulation materials and coverings used in ventilation and with the purposes and properties of these. They must command lifting and transfer work, the use of angle and bench grinders as well as drilling and threading work.

Candidates must be familiar with the basics of mechanical and natural ventilation, factors determining ventilation needs and effective statutes and official regulations. They must possess a general understanding of the operating principles of different air-conditioning systems, air conditioners and heat recovery systems. They must be familiar with different air distribution methods and command the basics of flow technology and key ventilation processes.

Candidates must be able to interpret flat layout and section drawings, carry out installation work and prepare parts lists based on these. They must understand the most common electrical connections relating to ventilation technology and be able to perform 'DIY'-level electrical work, taking the safety regulations of electrical equipment into account in their work. They must be familiar with key corrosion protection techniques and know how to carry out anti-corrosive finishing and protective measures.

Candidates must be able to choose and mount supports for ventilation machinery and ducts. They must be capable of fitting different types of ventilation ducts independently, even with insulation, be aware of the operating principles of ventilation machinery and know how to fit ventilation machinery ducts and machinery room ventilation ducts and related equipment. They must command resistance welding techniques. They must know how to cut using sheet shears, guillotine shears, profile cutting machines, nibblers and metal shears. They must know how to operate bending rolls and folding, crimping and seaming machinery. They must know how to prepare fittings and duct parts and to assemble duct parts.

Candidates must know how to independently carry out measurements and adjustments of ventilation systems and take noise and temperature measurements. They must know how to perform leak tests on ventilation ducts, troubleshoot and repair malfunctions in ventilation systems and interpret schematic ventilation diagrams.

Candidates must be capable of acting in different customer service situations in a flexible manner. They must be capable of applying to their own work the contractual terms and practices used in trading within their field as well as the Consumer Protection Act and the Product Liability Act. They must be familiar with their business enterprise's quality and environmental systems and the key regulations relating to waste management that are relevant to their own work. They must be familiar with the most important regulations and guidelines of the Building Code of Finland that are relevant to their own field. They must possess basic knowledge of design and dimensioning in their own field. They must also know how to plan and supervise workplace operations efficiently.

Those who have completed the qualification are equipped to work in different types of demanding assignments within the ventilation field.

MECHANICAL, METAL AND ENERGY ENGINEERING

VOCATIONAL QUALIFICATION

- Vocational Qualification in Metalwork and Machinery

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification in Casting Technology
- Further Qualification for Construction Sheet-metal Workers
- Further Qualification in Foundry Patternmaking
- Further Qualification for Lift Mechanics
- Further Qualification for Machinists
- Further Qualification for Mechanical Fitters
- Further Qualification in Metal Processing
- Further Qualification in Mining
- Further Qualification in Plate and Sheet Metal Technology
- Further Qualification in Ship-building
- Further Qualification for Toolmakers
- Further Qualification for Welders

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification in Casting Technology
- Specialist Qualification for Construction Sheet-metal Workers
- Specialist Qualification in Foundry Patternmaking
- Specialist Qualification for Mechanical Fitters
- Specialist Qualification for Machinists
- Specialist Qualification for Platers
- Specialist Qualification for Toolmakers
- Specialist Qualification for Welders

Vocational Qualification in Metalwork and Machinery

In the competence area in manufacturing technology, candidates may specialise in machining (Machinist), plate work and welding (Plater-welder), machinery installation (Mechanical Fitter), instrument manufacturing (Instrument Maker) or precision mechanics (Precision Mechanic).

For Machinists, the compulsory modules of the qualification are *general skills in metalwork and machinery* and *machining*. One of the following modules must also be taken: *manual machining, NC machining, flexible manufacturing systems*. In addition, three unselected modules must be taken from the optional modules listed below.

For Plater-welders, the compulsory modules of the qualification are *general skills in metalwork and machinery* and *plate work and welding*. One of the following modules must also be taken: *plate and steel structural work, sheet metal work, welding, NC technology in welding and plate work, construction sheet metal work*. In addition, three unselected modules must be taken from the optional modules listed below.

For Mechanical Fitters, the compulsory modules of the qualification are *general skills in metalwork and machinery* and *mechanical fitting*. One of the following modules must also be taken: *equipment welding, maintenance, hydraulic and pneumatic systems, pneumatics, hydraulics, control technology*. In

addition, three unselected modules must be taken from the optional modules listed below.

For Instrument Makers, the compulsory modules of the qualification are *general skills in metalwork and machinery* and *tool technology*. One of the following modules must also be taken: *manufacturing of tools, tool assembly and maintenance, NC machining with special machine tools, preparation of CAD/CAM machining paths*. In addition, three unselected modules must be taken from the optional modules listed below.

For Precision Mechanics, the compulsory modules of the qualification are *general skills in metalwork and machinery* and *precision mechanics*. One of the following modules must also be taken: *repairs to machinery and equipment, production technology in the electronics industry*. In addition, three unselected modules must be taken from the optional modules listed below.

The optional modules of the competence area in manufacturing technology are as follows (2 = corresponds to two modules): *machining (2), plate work and welding (2), mechanical fitting (2), instrument technology (2), precision mechanics (2), manual machining, NC machining, flexible manufacturing systems, plate and steel structural work, sheet metal work, welding, NC technology in welding and plate work, construction sheet metal work, equipment welding, maintenance, hydraulic and pneumatic systems, pneumatics, hydraulics, control technology, manufacturing of tools, tool assembly and maintenance, NC machining with special machine tools, preparation of CAD/CAM machining paths, repairs to machinery and equipment, production technology in the electronics industry*.

In the competence area in automation technology and maintenance, candidates may specialise in automation fitting (Automation Assembler) or maintenance (Maintenance Fitter).

For Automation Assemblers, the compulsory modules of the qualification are *general skills in metalwork and machinery* and *general skills in automation technology and maintenance*. One of the following modules must also be taken: *mechatronics, manufacturing automation, process automation*. In addition, candidates must also take one of the unselected modules from the previous section, or the *maintenance technology* module, or four of the following modules (2 = corresponds to two modules): *basics of manufacturing automation (2), basics of process automation (2), hydraulics and pneumatics (2), building automation, low-voltage and information systems in buildings, power electronics, computer operating systems, computer telecommunications*. Basics of manufacturing automation may not be selected if the manufacturing automation module has been chosen and basics of process automation may not be selected if the process automation module has been chosen.

For Maintenance Fitters, the compulsory modules of the qualification are *general skills in metalwork and machinery, general skills in automation technology and maintenance* and *maintenance technology*. In addition, candidates must either take one of modules *mechatronics, process automation* and *manufacturing automation* or four of the following modules (2 = corresponds to two modules): *basics of manufacturing automation (2), basics of process automation (2), hydraulics and pneumatics (2), building automation, low-voltage and information systems in buildings, power electronics, computer operating systems, computer telecommunications*.

In the competence area in casting technology, candidates may specialise in casting (Founder) or in foundry patternmaking (Foundry Patternmaker).

For Founders, the compulsory modules of the qualification are *general skills in metalwork and machinery* and *general skills in casting technology*. One of the following modules must also be taken: *dead mould technology, permanent mould technology*. In addition, two of the following modules must be taken: *basics of dead mould technology, basics of permanent mould technology, basics of pattern-making technology, plastic pattern technology, CAD/CAM technology, foundry automation*.

For Foundry Patternmakers, the compulsory modules of the qualification are *pattern-making technology, general skills in casting technology* and either *general skills in metalwork and machinery* or *basic*

wood-processing skills. Two of the following modules must also be taken: *basics of dead mould technology, basics of permanent mould technology, plastic pattern technology, CAD/CAM technology, foundry automation.*

Candidates taking the competence area in manufacturing technology must have an extensive command of manufacturing technologies in metalwork and machinery. Candidates in machining must be able to perform drilling, turning, milling and grinding jobs. In addition to installation and assembly skills, Mechanical Fitters must also possess knowledge of automation systems and competence in servicing and maintenance tasks. Plater-welders must be able to perform various tasks related to metal structures.

Precision Mechanics must also be able to perform repairs and assembly tasks for devices containing electronic components. Instrument Makers must be able to manufacture various instruments, using diverse working methods, special machine tools and special materials.

Candidates taking the competence area in automation technology and maintenance must possess extensive basic skills in metalwork and machinery and specialist competence in either automation technology or maintenance technology. In addition to mechanical, hydraulic and pneumatic automation technology, Automation Fitters must also be familiar with electrical automation. Maintenance Fitters must possess extensive maintenance skills or specialist knowledge of a specialist area of maintenance.

In addition to the basics of metalwork and machinery, candidates taking the competence area in casting technology must also be familiar with general casting technology and they must possess specialist competence in dead mould, permanent mould or pattern-making technology. Foundry Patternmakers must be able to make foundry patterns and core boxes from a variety of materials. Founders must be able to prepare a dead mould or to use the casting equipment of permanent mould technology and to melt and finish castings.

Those who have completed the qualification possess extensive basic skills for manufacturing assignments in the metal industry in particular and for maintenance assignments in community development and at production plants and they also possess specialist competence for a specific assignment in metalwork and machinery.

Further Qualification in Casting Technology

The competence areas of the qualification are permanent moulds and dead moulds. The common modules of the competence area in permanent moulds are *general working life skills* and *basic foundry skills, permanent moulds*. In addition, two of the following modules must also be chosen: *casting design technology, materials technology, melting and melt treatment technology, mould technology, casting technology* and *quality engineering*.

The common modules of the competence area in dead moulds are *general working life skills* and *basic foundry skills, dead moulds*. In addition, one of the following modules must also be chosen: *mould and core manufacturing technology, melting and casting technology* and *finishing technology*.

In addition, all candidates may also take the *entrepreneurship* module.

Candidates must have good abilities to function in working communities and an overview of economic efficiency of work. They must be quality-conscious and must take environmental and occupational safety regulations into account. They must be able to assess different working phases and be aware of the quality requirements of castings. They must be able to use foundry

information technology. They must be familiar with the foundry process as a whole.

Candidates must command casting design technology and basic terminology as part of basic mould casting skills. They must be able to read engineering drawings. They must know how to analyse and treat materials. They must be familiar with raw materials and their properties. They must command melting techniques and know how to operate furnaces and equipment as required. They must command mould and/or core-making techniques and casting, quality and finishing techniques. They must know how to service and clean moulds and insert moulds into the casting machine. They must know how to operate, service and maintain equipment and machinery as required. They must understand the significance of temperature variations. They must be able to identify and repair various malfunctions and casting defects.

In addition, candidates must command advanced skills in and knowledge of technologies relevant to their chosen modules.

Those who have completed the qualification may work in foundries and patternmaker's shops in assignments related to making sand moulds and/or cores.

Further Qualification for Construction Sheet-metal Workers

The common module of the qualification is *basic skills of a construction sheet-metal worker*. In addition, two of the following modules must also be taken: *sheet-metal work for felt, brick and profiled metal roof cladding*, *sheet-metal work for façades* and *sheet-metal work for seam metal roofs*. The optional module is *entrepreneurship*.

Candidates taking the basic skills of a construction sheet-metal worker module must possess sufficient occupational safety skills and abilities to function in working communities and environments and they must know how to work economically and to a high quality standard. They must be able to read working drawings and work accordingly. They must be familiar with metals, their properties and machining requirements. They must command measuring tasks and calculation methods of blank dimensions.

They must be able to perform lifts and transfers safely. They must know how to select correct auxiliary equipment and working methods when carrying out sawing, grinding and drilling work and when cutting with sheet shears. They must be familiar with the structures and operating principles of the guillotine shears that they use in general terms as well as with their applications and restrictions on their use.

Candidates must be familiar with the operating principles and typical applications of electrically or pneumatically operated profile cutting machines and nibblers in general terms. They must know how to use metal shears, bending rolls, press brakes and folding and crimping machinery appropriately. They must know how to carry out seaming, soldering, brazing and spot welding work.

Candidates taking the sheet-metal work for felt, brick and profiled metal roof cladding module must be familiar with different structures and their roles. They must know how to dimension components, make structures and perform insulation work on roofs. They must know how to use appropriate working methods and materials. They must know how to dimension and make rainwater systems, skirtings and roof safety products.

Those taking the sheet-metal work for façades module must command the structures and installation of profiled metal, beam and cassette walls.

Those taking the sheet-metal work for seam metal roofs module must command different

structures and their significance. They must know how to dimension components, make structures and perform insulation work on roofs. They must know how to use appropriate working methods and materials. They must know how to dimension and make rainwater systems, skirtings and roof safety products.

Those who have chosen the entrepreneurship module must be familiar with the requirements and obligations involved in different forms of enterprise.

Those who have completed the qualification may work in assignments related to the manufacturing of sheet-metal components for buildings and the installation of sheet-metal panels for construction purposes.

Further Qualification in Foundry Patternmaking

The common modules of the qualification are *general working life skills* and *general patternmaking skills*. In addition, two of the following modules must also be chosen: *wooden patterns and core boxes*, *plastic patterns and core boxes*, *pattern design*, *CNC technology*, *5-axis machining*, *preparation of CAM paths*, *modelling*, *computer-aided design (CAD)*, *mould manufacturing technology*, *special pattern technology*, *rapid prototyping technology (rapid patterns)*, *measurement and quality control*. In addition, it is also possible to take the *entrepreneurship* module.

Candidates must possess good abilities to function in working communities and environments. They must be aware of the requirements of economical work. They must be familiar with quality requirements and the possibilities and means of quality management. They must work in compliance with safety and environmental regulations. They must command lifting and transfer equipment and be capable of using various items of machinery to perform lifts and transfers.

Candidates must work in a customer-focused manner, be familiar with agreements in place in the field and be aware of their duties and responsibilities. They must be familiar with negotiation techniques. They must command manual working methods and tool maintenance. They must command different phases of machining. They must be familiar with materials and structures as well as with machinery, equipment and their maintenance.

They must be able to prepare work plans for moulding patterns and core boxes and to measure and document their work. They must know how to select cutting tools and parameters, implements and damping methods. They must be capable of reading and interpreting working drawings and electronic files used in the foundry and patternmaking field. They must be able to plan production according to drawings. They must be able to choose the correct working methods and sequence. They must be familiar with materials, their use and surface treatment possibilities.

Candidates must be familiar with various machining, manufacturing and finishing methods. They must have adequate command of foundry information technology, mathematics and languages. They must know how to use measuring equipment and gauges appropriately.

In addition, candidates must command advanced skills and knowledge of their chosen modules.

Those who have completed the qualification may work in design and manufacturing assignments of moulding patterns and core boxes in patternmaker's and scale-model maker's shops and in mould workshops, for example.

Further Qualification for Lift Mechanics

The common module of the qualification is *general skills for lift mechanics*. In addition, one of the following modules must also be taken: *lift installation; lift modernisation; installation, modernisation and maintenance of escalators and travelators; maintenance of lift equipment*. In addition, it is also possible to take the *entrepreneurship* module.

Candidates must be familiar with the business idea, values, objectives and operating principles of the business enterprise that they represent. They must be familiar with the enterprise's environmental programme and with the processes in place at the workplace for the storage and transfer of implements, raw materials and semi-finished goods. They must be able to take account of the effects of work on the working environment and attend to the necessary protection measures.

They must be familiar with regulations and standards applicable to fitting, servicing and modernising lift apparatus. They must be familiar with the electrical safety regulations applicable to lift installation work and know how to perform first aid measures according to regulations. They must be familiar with the enterprise's occupational safety instructions and regulations as well as with the hot work requirements set by the working environment and the safety regulations governing hot work.

Candidates must be familiar with the factors that make up the total price of work and with their effects on overall costs. They must be familiar with quality systems used at the workplace and the requirements imposed on operations by these systems. They must be able to determine the quality required of work and products with the aid of technical drawings and instructions and to achieve the required standard of quality. Within the scope of their job description, they must know how to instruct new employees in work assignments and in safety issues in particular.

They must be familiar with the customer-focused business process and must take the needs and expectations of customers into account in their work. They must possess the basic skills required for site negotiations. They must be familiar with the general structural and operating principles of lift apparatus and vertical lift doors and with the functions of the components. In addition, they must possess the skills and knowledge required for their chosen module.

Those who have completed the qualification may work in assignments related to the fitting, modernisation, servicing and maintenance of lifts, escalators and travelators, according to their specialisation area.

Further Qualification for Machinists

The common module of the qualification is *general machining skills and knowledge*. The optional modules are *turning, milling, boring, grinding, planing* and *electro-discharge machining*. Two of the optional modules must be taken where vocational skills are only demonstrated using a manual or a numerically controlled machine tool or using a manual machine tool for one module and a numerically controlled machine tool for the other module. One of the optional modules must be taken where vocational skills are demonstrated using both a manual and a numerically controlled machine tool. In addition, it is also possible to take the *entrepreneurship* module.

Candidates must be familiar with the machineability of different materials and also with their effects on the selection of sharp tools and cutting parameters. They must be able to choose the

correct cutting parameters, machining allowances and coolants. They must be familiar with the applications of high-speed machining and be conscious of the effects of each particular machining technique on product quality and costs. They must command basic arithmetic and percentage calculations and must know how to use scientific calculators. They must know how to read working diagrams and, based on these, to select the correct working method. They must know how to select a measuring device appropriate for a particular application and to perform measurements using different types of units of measurement and measuring devices. They must be familiar with the material markings of the materials that they use, their applications, strength properties and heat treatment opportunities. They must understand the necessity of methods planning and must know how to produce a systematic and effective work phasing scheme that complies with occupational safety requirements. They must be familiar with the special features of machinery and equipment in terms of occupational health and safety and use appropriate protective equipment. They must use tools, machinery and equipment economically and take account of the effects of each particular working method on the total costs. They must know how to use computers for acquiring information and for producing text and simple tables. They must be familiar with the business enterprise that they represent, its production process and transaction procedures and understand the operating methods of team organisations. They must be able to cope with English-language error messages and user instructions for machining tools with the aid of dictionaries. They must be familiar with the environmental programme of their working community and know how to perform the key measures related to environmental protection as well as to waste management and treatment of hazardous waste in metalwork and machinery. In addition, they must command the skills and knowledge of their chosen optional module(s).

Those who have completed the qualification may work in different types of advanced machining assignments within the metal and mechanical industries.

Further Qualification for Mechanical Fitters

The common modules of the qualification in the specialisation area in assembly installations are *general skills* and *mechanical fitting in assembly installations*. In addition, three of the following modules must also be taken (one of the first two must be selected): *installation of industrial hydraulic systems in assembly installations* or *installation of industrial machinery hydraulic systems in assembly installations*, *installation of pneumatic systems*, *installation of lubrication equipment*, *control and automation equipment work* and *equipment welding*.

The common modules in the specialisation area in export installations are: *general skills*, *travel working skills* and *functioning at installation sites* and *mechanical fitting in export installations*. In addition, two of the following modules must also be selected: *installation of industrial hydraulic systems in export installations*, *installation of pneumatic systems*, *installation of lubrication equipment*, *control and automation equipment work* and *equipment welding*.

The common modules in the specialisation area in maintenance are: *general skills*, *maintenance operations* and *mechanical maintenance*. In addition, two of the following modules must also be selected: *maintenance of hydraulic systems*, *maintenance of pneumatic systems*, *maintenance of lubrication equipment*, *control and automation equipment work*, *repair welding* and *travel working skills*.

In addition, all candidates may also take the *electrical equipment maintenance* and *entrepreneurship* modules.

Candidates must know how to read working diagrams and, based on these, to select the correct working methods and materials. They must have the necessary abilities to function in a working community and skills to work in a safe and economical manner and to a high quality standard. They must comply with the provisions of occupational safety, environmental and labour legislation governing their field. They must possess the necessary IT and language skills. They must know how to use various measuring devices, carry out lifting and transfer tasks and use shears and plate and sheet metal working machinery. They must know how to perform sawing, grinding, drilling and threading work, make bolted connections and bend pipes.

Candidates must be able to assemble, install, service and repair machinery and equipment according to their chosen specialisation area. They must be capable of planning, implementing, finishing and inspecting work. They must be able to report on the measuring and adjustment values of installation work during its execution.

Those who have completed the qualification may work in demanding assignments related to assembly, fitting, maintenance and servicing in metal industry plants.

Further Qualification in Metal Processing

The common modules of the qualification are *production* (one of the following nine modules must be taken: from the main field of pyrometallurgy, 1. processing of molten metal, 2. further processing of molten metal; from the main field of hydrometallurgy, 3. leaching, 4. extraction-reduction, 5. electrolysis; from the main field of metal working, 6. hot forming, 7. cold forming, 8. heat treatments, pickling and washing operations, 9. shearing, sawing, die-cutting and machining), *maintenance management*, *process automation* and *operating environments*. In addition, two of the following modules must also be taken: *knowledge of materials*, *hydraulics and pneumatics*, *information technology*, *environmental protection and quality management*, *languages*, *automation and electrical engineering*.

Candidates must command the concepts used in the process and understand the different phases of the process and the whole that they create. They must possess vocational knowledge as required in the occupation. They must be familiar with the business enterprise's basic raw materials and be aware of their pretreatment techniques and transportation methods.

Candidates must command the different phases and special requirements of production planning in their chosen area. They must be able to carry out their assignments independently in accordance with work instructions, without slowing down the operations of the rest of the process. They must use process equipment economically and carefully, understand the significance of product quality and be aware of the effects of production defects on production costs. They must command flexible co-operation and teamwork.

Candidates must be familiar with the occupational safety instructions of their business enterprise and department and with the safety risks and safety regulations in the working area and they must take these into account in their work. They must use the protective equipment designed for their work and must also take account of the safety of colleagues. They must be aware of the significance and obligations of environmental protection. They must know how to administer first aid. They must be able to guide new employees in their respective duties.

Those who have completed the qualification may undertake different operating assignments within the base metal industry.

Further Qualification in Mining

The common module of the qualification is *basic skills*. In addition, the qualification comprises the following optional modules: *loading and blasting in opencast mining**, *loading and blasting in mine development**, *loading and blasting in mine production**, *drilling in opencast mining**, *drilling in mine development**, *drilling in mine production**, *mineral deposit explorations*, *backfilling*, *rock reinforcement methods*, *mucking crushing and hoisting methods**, *mine construction engineering* and *maintenance of mobile and fixed equipment**. Candidates must choose three optional modules, such that their choices may only include one of the loading and blasting modules and one of the drilling modules. Those marked with an asterisk (*) have a scope equivalent to two modules. Candidates choosing a qualification module related to operating a vehicle must hold a valid driving licence.

Candidates must possess a safety pass and a valid certificate for hot work (hot work card).

Candidates must be familiar with the key points of labour legislation, the collective agreement in their field and general occupational safety legislation, safety regulations and special regulations and statutes governing mines. They must be familiar with safety risks and be able to attend to occupational ergonomics. They must be familiar with the quality and environmental programmes in place within their working community. They must be aware of the significance of customer relationships and goal-oriented thinking to business enterprises.

Candidates must be familiar with the basics of mine and production planning and be able to interpret graphical symbols and the locations and dimensions of structures on plans and to make related decisions concerning their work performance. They must command basic knowledge of geology, mineralogy and rock mechanics.

Depending on their choices, candidates must command the following skills and knowledge:

Candidates must know how to carry out loading and blasting work required in mining both independently and as team members in accordance with a plan provided in advance. They must command blasting agents and equipment and related explosive-specific instructions and regulations and they must command and know how to service the machinery and equipment that they use. They must know how to perform core and percussion drilling work to investigate a mineral deposit on the basis of a written plan prepared by a mining geologist.

Candidates must command drilling work required in mining in accordance with a written plan and their own assessment (occupational safety). They must be familiar with backfilling techniques (waste backfilling and paste backfilling) and backfill materials (muck, tailings and binders).

Candidates must know how to carry out shotcreting, mesh reinforcement and bolting tasks both independently and as team members, satisfying quality requirements and in compliance with supervisory personnel's plans. They must know how to load muck either by remote control or operating a loading machine. In addition, they must know how to handle selective ore and gangue. They must know how to perform daily servicing of loading and transport equipment.

Candidates must be familiar with the requirements of hoisting methods in accordance with the Decision of the Ministry of Trade and Industry 372/1969 on Mine Hoisting Plants and subsequent amendment (1188/1995). They must be familiar with the operating principles of crushing plants and equipment as well as with different hoisting methods.

Candidates must know how to make routine wooden, steel and concrete structures built on-site as part of mine construction work. They must know how to install equipment relating to mine ventilation, drainage, service water, compressed air, power supply and data transmission,

including relevant measurements and quality assurance measures, and to carry out measures relating to road maintenance.

Candidates must command measurement-based maintenance of mobile and fixed mine equipment. They must know how to inspect and service equipment. In addition, candidates must know how to carry out work planned by supervisory personnel in relation to regular and safety inspections as well as repairs.

Those who have completed the qualification may work in different mining assignments.

Further Qualification in Plate and Sheet Metal Technology

The qualification comprises two specialisation areas:

The compulsory modules of the qualification in the **first specialisation area** are *general skills in plate, sheet metal and steel structural work* and *welding*. In addition, candidates must also take either *sheet metal work* or *heavy plate work* and one of the following four modules: *steel structural work*, *field welding work*, *category 8 and 10 materials in plate and sheet metal work (ISO/TR 15608)* or *category 21, 22 and 23 materials in plate and sheet metal work (ISO/TR 15608)*. Instead of selecting a module from the last group, candidates may take both the *sheet metal work* and the *heavy plate work* modules.

The common modules in the **second specialisation area** are *general skills in plate, sheet metal and steel structural work* and *welding and joining*. In addition, candidates must take either *sheet metal work* or *heavy plate work* and two of the following modules, however, so that they may only take one of the first two modules: *category 8 and 10 materials in plate and sheet metal work (ISO/TR 15608)*, *category 21, 22 and 23 materials in plate and sheet metal work (ISO/TR 15608)*, *laser cutting*, *water jet cutting*, *plate and sheet metal working on machining centres*, *forming* and *working with press tools*. In addition, it is also possible to take the *entrepreneurship* module.

Candidates must be familiar with the main features of the market areas, products, objectives and policies of the business enterprise that they represent and with its organisational structure and their own area of responsibility within it. They must command customer service. They must comply with occupational safety instructions and be able to take the necessary safety and protective measures. In their work, they must take account of its effects on the working environment and be familiar with personal protective equipment and know when it needs to be used.

Candidates must know how to work economically. They must be capable of assessing the work processes in their area of assignments and of making suggestions for improvement. They must possess basic skills to use data processing systems. They must be able to determine the standard of quality required in an assignment with the aid of working drawings and instructions. They must be able to read drawings. They must be familiar with factors determining the strength properties of steels and with their effects on the strength of structures. They must be familiar with the typical applications of different measuring methods and be able to perform measurements. They must be familiar with marking-out techniques, implements and symbols used in plate, sheet metal and steel structural work as well as with basic measurement concepts and drawing techniques in the theory of flat pattern layouts. They must be able to select suitable lifting and transfer equipment and be familiar with the accident risks and occupational safety requirements related to lifts and transfers. They must know how to perform finishing and

protective measures to prevent corrosion.

In addition to command of general basic welding skills and knowledge, the welding module requires demonstration of welding skills for different welding processes. Candidates must hold the International Plate Welder's Diploma in one of the following processes: MMA welding, MAG welding, MAG flux cored arc welding, MIG welding or TIG welding. In addition, they must hold the International Fillet Welder's Diploma in another of the above-mentioned processes and the International Fillet Welder's Diploma in a third of the above-mentioned processes or in one of the following processes: submerged arc welding, plasma welding or spot, seam or projection welding. In addition, candidates must pass a theoretical test. Completion of equivalent European Welding Qualifications is accepted as evidence of welding skills.

Candidates taking the joining and welding module must command general basic welding skills and knowledge and know how to carry out TIG welding and either MAG or MIG welding as well as spot, seam or projection welding. They must command resistance welding and the principles of laser welding and arc brazing. They must know how to join different materials by bonding, mechanical press fits and self-piercing riveting. They must be familiar with the most common sheet metal materials and know how to handle these.

Candidates must be able to perform welding tasks in both modules so as to satisfy the requirements of quality level B as specified in standard SFS-EN ISO 5817. Exceptions are excess weld metal (butt and fillet weld), excessive convexity, excess throat thickness and excessive penetration, where the requirement is quality level C. They must be able to assess visually and perform measurements to check that welds satisfy relevant quality and geometric requirements.

In addition, candidates must command the skills and knowledge required for their chosen modules in treating different materials and using different machining techniques.

Those who have completed the qualification may work in assignments related to installation, welding and plate and sheet metal work and to servicing and maintenance in engineering shops, shipyards and on construction sites.

Further Qualification in Ship-building

The common module of the qualification is *general ship-building skills*. In addition, one of the following modules must also be taken: *welding, plate and sheet metal work, interior work, outfitting, machinery installation* and *pipefitting*. In addition to these, a further three modules not previously selected must also be taken, such that the chosen modules come from at least two different groups. Qualification modules marked with an asterisk (*) are equivalent to two modules.

Group I: *welding**, *plate and sheet metal work**, *block erection**, *plate forming*, *operation of oxygen and plasma cutting machinery*, *robotic welding*, *bending and forming of sections*, *mechanised flux cored arc welding*, *mechanised submerged arc welding*, *operation of stiffener welding stations* and *shape correction by heating*.

Group II: *interior work**, *outfitting**, *offshore plate and sheet metal work*, *offshore welding*, *air-conditioning installation*, *insulation work*, *stainless fixture installation*, *stainless steel structural work* and *aluminium structural work*.

Group III: *pipefitting**, *machine installation**, *propulsion machinery installation*, *commissioning work* and *tube welding*.

In addition to these, it is possible to take the *entrepreneurship* module.

Candidates must have general ship-building skills and knowledge. They must be able to read working drawings used in ship-building and they must have adequate mathematical and IT skills.

They must be familiar with materials and command cutting, joining and fastening techniques. They must know how to use tools, machinery and equipment in an appropriate manner and be capable of working economically and in compliance with the quality system. They must be familiar with the operating methods of their working environment and issues relating to occupational health and safety and environmental protection. They must hold valid occupational safety and hot work cards.

Candidates must command the vocational skills required in their chosen qualification modules. They must command ship-building extensively and specialise in welding and plate and sheet metal work, interior and outfitting work, or pipefitting and machinery installation. Welding skills are demonstrated through qualification tests.

Those who have completed the qualification may work in the ship-building industry and its subcontracting enterprises.

Further Qualification for Toolmakers

The compulsory modules of the qualification are *general working life skills* and *general instrument technology skills*. The latter may be completed in one of the following instrument groups: moulds, forming tools, die-cutting tools, cutting tools or controls and fasteners. The optional modules comprise manual machining, NC and special machining techniques and different manual working methods and modules related to design, automation and materials handling. Two of the optional modules must be taken. Candidates may choose these freely, as long as they do not select two manual machining techniques or the manual and numerical forms of the same machining technique. In addition, it is also possible to select the *entrepreneurship* module.

Candidates must be familiar with the main features of the market areas, products, values, objectives and operating principles of the business enterprise that they represent and with its organisational structure. They must know how to serve customers. They must be familiar with accident risks and occupational health hazards in their working environment and command the necessary safety and protective measures. They must be familiar with personal protective equipment and protection methods. They must know how to use raw materials and supplies economically and must be capable of planning and implementing work assignments without causing unnecessary delays. They must be able to determine the standard of quality required in an assignment and the end product and must know how to carry out the assignment in accordance with quality requirements. They must possess basic information technology skills and they must be able to perform basic word processing, spreadsheet and data transmission tasks.

Candidates must be familiar with the key tools used in their own specialisation area and with their operating principles. They must know how to read working diagrams and use the system of fits. They must be familiar with instrument-making materials and the structural principles of instruments and must know how to plan the production of an instrument or its component. Candidates must be capable of producing instrument components using different machining techniques and of carrying out repairs using machining methods. They must be familiar with hand tools and their operating principles, be capable of filing and adjusting instruments and performing work related to servicing and fitting instruments. They must be able to choose the correct tools and working methods and to adjust their work to the whole process.

Candidates must understand the principles of methods planning and identify the require-

ments of manufacturing technology set by the structure of a particular instrument. They must be able to select the machine tools to use and the appropriate fastenings of the workpieces and they must also be able to determine machining allowances and, where necessary, rough machining operations. They must know how to phase their work consistently, effectively and safely and also to compare the costs of different alternatives. They must be familiar with and know how to select materials used to make instruments in their own specialisation area. They must be familiar with the most common instrument coating methods and must command the basics of measuring hardness. They must be able to choose and use measuring devices and gauges purposefully.

Instrument makers are needed for assignments such as mould-making in the plastics industry and production of forming, cutting and die-cutting instruments and different types of controls and fasteners related to product manufacturing either in instrument production departments at production plants or in subcontracting engineering workshops.

Further Qualification for Welders

The common modules of the qualification are *welder's general skills, preparation and post-treatment of joints, MMA welding, MIG/MAG welding, TIG welding* and *occupational technology for welders*. In addition to these, candidates may also choose to take the *entrepreneurship* module.

Candidates must command welding tasks at different levels, using different processes and base metals.

Competence tests to demonstrate vocational skills use the qualifications and education and training programmes designed by the International Institute of Welding (IIW). The competence tests in the MMA, MIG/MAG and TIG welding modules are to be completed in accordance with the requirements of the International Welder Qualifications.

In International Welder Qualifications (IW), welding skills are mainly demonstrated using steel. The base material is to be selected from material groups 1, 2, 3, 8, 10 and 11 (ISO/TR 15608). Welding skills are to be demonstrated in three processes using at least two (2) steel grades falling within different material groups, while one of the selected steel grades must be from group 8 or 10. The base material to be welded or the welding process used in competence tests may not be changed when moving from one process-specific qualification level to the next.

The assignments are to be performed in accordance with the SFS-EN 287-1 or SFS-EN ISO 9606-2 standards. Practicals and qualification tests for the highest targeted level must always be carried out and qualification tests must always be examined to the extent required by standard SFS-EN 287-1 or SFS-EN ISO 9606-2.

The welding modules also include basic knowledge of and skills in welding required in each specific process group. Candidates must command actual welding skills so as to attain the IIW qualifications as follows: the International Fillet Welder's Diploma in one welding process (MMA welding or MIG/MAG welding or TIG welding), the International Plate Welder's Diploma in another welding process and the International Tube Welder's Diploma in a third welding process.

In MIG/MAG welding, candidates may choose solid-wire MAG welding (135) or flux-cored MAG welding (136) or MIG welding (131).

In addition, completion of International Welder's Diplomas also entails acceptable performance in the theoretical test (i.e. the occupational technology for welders module) as required

by the International Institute of Welding. The occupational technology for welders module consists of theoretical modules A, B, C, SA, SM, ST, PSS and PAL of the International Welder's education and training programme. The competence test is to be performed by completing the theoretical welding test prepared by the Welding Society of Finland (WSF) on the basis of the above-mentioned IW programme.

The qualification and theoretical tests completed as part of the Further Qualification for Welders are accepted as fully completed modules in the Specialist Qualification for Welders. Once those completing the Further Qualification have reached the tube welding level in the MMA welding process (111) or the MAG 135 and 136 or TIG 141 process and passed the occupational technology for welders module, they will also be awarded a certificate for completion of a module from the Specialist Qualification for Welders on request.

Those who have completed the qualification may work in different types of demanding welding assignments.

Specialist Qualification in Casting Technology

The competence areas of the qualification are permanent moulds and dead moulds. The common modules of the competence area in permanent moulds are *general working life skills* and *basic foundry skills, permanent moulds*. In addition, two of the following modules must also be chosen: *casting design technology, melting and melt treatment technology, casting technology* and *quality engineering*.

The common modules of the competence area in dead moulds are *general working life skills* and *basic foundry skills, dead moulds*. In addition, one of the following modules must also be chosen: *casting design technology, mould and core manufacturing technology, melting and casting technology* and *finishing technology*.

In addition, all candidates may also take the *entrepreneurship* module.

Candidates must have good abilities to function in working communities and an overview of economic efficiency of work. They must be familiar with the major cost factors of a foundry. They must be quality-conscious and must take environmental and occupational safety regulations into account. They must be able to assess different working phases and be aware of the quality requirements of castings. They must be familiar with lifting and transfer processes. They must be able to use foundry information technology. They must be familiar with the different phases of the foundry process as a whole, the principles of production management and factors influencing delivery reliability and lead times. They must be familiar with the most important customer requirements. They must be familiar with the foundry industry, key machinery and equipment manufacturers and various moulding and core-making techniques. They must be familiar with different melting and melt treatment methods.

Candidates must command casting design technology and basic terminology as part of basic mould casting skills. They must be able to read engineering drawings. They must know how to analyse and treat materials. They must be familiar with raw materials and their properties. They must command melting techniques and know how to operate furnaces and equipment as required. They must command mould and/or core-making techniques and casting, quality and finishing techniques. They must know how to service and clean moulds and insert moulds into the casting machine. They must know how to operate, service and maintain equipment and machinery as required. They must understand the significance of temperature variations. They

must be able to identify and repair various malfunctions and casting defects.

As versatile professionals in their own field, candidates must be able to provide other people with workplace instruction and orientation.

In addition, candidates must command advanced skills in and knowledge of technologies relevant to their chosen modules.

Those who have completed the qualification may work in foundries and pattern maker's shops in assignments related to making sand moulds and/or cores and in supervisory and workplace instruction assignments.

Specialist Qualification for Construction Sheet-Metal Workers

The common module of the qualification is *basic skills of a construction sheet-metal worker*. In addition, two of the following modules must also be taken: *sheet-metal work for felt, brick and profiled metal roof cladding*, *sheet-metal work for façades* and *sheet-metal work for seam metal roofs*. The following modules must also be taken: *production skills* and *site operations*. All candidates are also free to take the *entrepreneurship* module.

Candidates taking the basic skills of a construction sheet-metal worker module must possess sufficient occupational safety skills and abilities to function in working communities and environments and they must know how to work economically and to a high quality standard. They must be able to read working drawings and work accordingly. They must be familiar with metals, their properties and machining requirements. They must command measuring tasks and calculation methods of blank dimensions. They must be able to perform lifts and transfers safely. They must know how to select correct auxiliary equipment and working methods when carrying out sawing, grinding and drilling work and when cutting with sheet shears. They must be familiar with the structures and operating principles of the guillotine shears that they use in general terms as well as with their applications and restrictions on their use.

Candidates must be familiar with the operating principles and typical applications of electrically or pneumatically operated profile cutting machines and nibblers in general terms. They must know how to use metal shears, bending rolls, press brakes and folding and crimping machinery appropriately. They must know how to carry out seaming, soldering, brazing and spot welding work.

Candidates taking the sheet-metal work for felt, brick and profiled metal roof cladding module must be familiar with different structures and their roles. They must know how to dimension components, make structures and perform insulation work on roofs. They must know how to use appropriate working methods and materials. They must know how to dimension and make rainwater systems, skirtings and roof safety products.

Those taking the sheet-metal work for façades module must command the structures and installation of profiled metal, beam and cassette walls.

Those taking the sheet-metal work for seam metal roofs module must command different structures and their significance. They must know how to dimension components, make structures and perform insulation work on roofs. They must know how to use appropriate working methods and materials. They must know how to dimension and make rainwater systems, skirtings and roof safety products.

In addition, candidates must also command diverse customer service in different situations. They must know how to present products and services within their field, being aware of delivery

practices, contractual terms and practices and being familiar with the Consumer Protection Act and the Product Liability Act. They must be able to function as supervisors and command economic activities, quality management and environmental issues.

Candidates must command the start-up of site operations, planning, preparation and organisation of work and handover of completed projects. They must be familiar with the necessary regulations and instructions and safety regulations.

Those who have chosen the entrepreneurship module must be familiar with the requirements and obligations involved in different forms of enterprise.

Those who have completed the qualification may work in highly skilled assignments related to the manufacturing of sheet-metal modules for buildings and the installation of sheet-metal panels for construction purposes.

Specialist Qualification in Foundry Patternmaking

The common modules of the qualification are *general working life skills*, *general patternmaking skills* and *workplace co-operation skills*. In addition, two of the following modules must also be chosen: *wooden patterns and core boxes*, *plastic patterns and core boxes*, *pattern design*, *CNC technology*, *5-axis machining*, *preparation of CAM paths*, *modelling*, *computer-aided design (CAD)*, *mould manufacturing technology*, *special pattern technology*, *rapid prototyping technology (rapid patterns)*, *measurement and quality control*. In addition, it is also possible to take the *entrepreneurship* module.

Candidates must possess good abilities to function in working communities and environments. They must be aware of the requirements of economical work and be capable of assessing work processes and methods. They must be familiar with quality requirements and the possibilities and means of quality management. They must work in compliance with safety and environmental regulations. They must command lifting and transfer equipment and be capable of using various items of machinery to perform lifts and transfers. They must work in a customer-focused manner, be familiar with agreements in place in the field and be aware of their duties and responsibilities. They must be familiar with negotiation techniques.

Candidates must command their own work assignments and be capable of guiding other people in using various methods. They must be familiar with manual working methods and different phases of machining. They must be familiar with the materials and structures used as well as with machinery, equipment and their maintenance. They must be able to prepare work plans for moulding patterns and core boxes and to measure and document their work. They must know how to select cutting tools and parameters, implements and clamping methods. They must be capable of reading and interpreting working drawings and electronic files used in the foundry and patternmaking field. They must be able to plan production according to drawings. They must be able to choose the correct working methods and sequence. They must be familiar with materials, their use and surface treatment possibilities. They must be familiar with the designation systems of cast metals and the principles of classification and standards.

Candidates must be familiar with various machining, manufacturing and finishing methods. They must be familiar with production management systems and know how to plan production. They must have adequate command of foundry information technology, mathematics and languages. They must know how to use measuring equipment and gauges appropriately. They must be capable of methods planning and be cost-aware. They must be capable of working as supervisors.

In addition, candidates must command advanced skills and knowledge of their chosen modules.

Those who have completed the qualification may work in design and manufacturing assignments of moulding patterns and core boxes in patternmaker's and scale-model maker's shops and in mould workshops, for example.

Specialist Qualification for Machinists

The basic modules of the qualification are *general machining skills and knowledge, methods planning, productivity and quality* and *workplace instruction*. Candidates specialising in numerical machining must also take *CAM machining (2D or 2.5D)* and one of the following modules: *turning, milling, boring, grinding, electro-discharge machining* or *planing*. In addition to the basic modules, those specialising in manual machining must also take two of the following modules: *turning, milling, boring, grinding, electro-discharge machining* or *planing*. In addition to these, two of the following optional modules must also be selected in both specialisation areas: *CAM programming (3D), profitability and cost management, robotics and cellular production, co-ordinate measuring* or *entrepreneurship*. Candidates who have chosen numerical machining may also replace one of these modules with one of the manual machining techniques, whereas those who have chosen manual machining may select numerical machining and *CAM programming (2D or 2.5 D)* instead.

Candidates must be able to prepare individual pieces or small series of pieces, using a manual or numerically controlled machine tool, according to working diagrams and fulfilling quality requirements.

They must be aware of the effects of the particular machining technique on product quality and costs. They must be familiar with the material markings and applications of all common materials. Based on working diagrams, they must be able to form an image of a product, identify the technical requirements of its production, propose changes and draw up a working plan.

They must be familiar with the quality system and must be able to act accordingly. They must be aware of the requirements set by the Product Liability Act for production and must be able to determine the quality required of work and products.

They must be familiar with the collective agreement system in their field and must know how to draw up a workplace instruction plan. They must be familiar with customer-oriented marketing and the main principles of product price formation.

Those who have completed the qualification may work in demanding assignments and in workplace instruction and supervisory assignments.

Specialist Qualification for Mechanical Fitters

The modules of the qualification are *fitting and assembly work, site welding, hydraulics, pneumatics* and *workplace instruction* and at least two of the following modules: *lubrication systems, maintenance, electrical engineering, machine and process automation, export fitting, financial accountability*.

Candidates must be able to fit, repair and service systems falling within their operating area and to serve as co-ordinators responsible for fitting groups, as supervisors and as instructors. They must be capable of interpreting standards, working diagrams, assembly drawings and parts list data and of drawing up fitting and repair work plans. They must be familiar with the operating

principles of a machine or a process that they are to fit, service or repair. They must be able to weld using common welding methods according to the requirements of the relevant standard when performing assembly, fitting and repair tasks. They must also be able to fit, repair and service hydraulic and pneumatic systems, be familiar with their control and regulating systems and be able to perform the adjustments required in connection with work. They must be able to determine the functioning of a machine and control system from circuit diagrams, and to locate defects using circuit diagrams and the status information provided by machine controls. They must be able to perform maintenance tasks and various maintenance measurements in their operating area, to maintain databases of maintenance monitoring systems and to plan and anticipate necessary maintenance and repair measures on the basis of measurement data.

Those who have completed the qualification may work in demanding assignments and in workplace instruction and supervisory assignments.

Specialist Qualification for Platers

The qualification offers a choice of two specialisation areas.

The common modules in the first specialisation area are *general skills in plate, sheet metal and steel structural work* and *welding*. Candidates must also take either *sheet metal work* or *heavy plate work*. In addition, candidates must choose three of the following modules: *steel structural work, field welding work, category 8 and 10 materials in plate and sheet metal work (ISO/TR 15608), laser cutting, water jet cutting, plate and sheet metal working on machining centres, forming, working with press tools, workplace training, production supervision, production planning* and *entrepreneurship*. One of these modules may be replaced by taking both the *sheet metal work* and *heavy plate work* modules.

The common modules in the second specialisation area are *general skills in plate, sheet metal and steel structural work* and *welding and joining*. Candidates must also take either *sheet metal work* or *heavy plate work*. In addition, candidates must also choose four of the following modules: *category 8 and 10 materials in plate and sheet metal work (ISO/TR 15608), category 21, 22 and 23 materials in plate and sheet metal work (ISO/TR 15608), steel structural work, field welding work, laser cutting, water jet cutting, plate and sheet metal working on machining centres, forming, working with press tools, workplace training, production supervision, production planning* and *entrepreneurship*.

Candidates must command customer service and be familiar with the operations of their business enterprise. They must be capable of assessing the work processes in their area of assignments and of making suggestions for improvement. They must be able to read diagrams. They must be familiar with materials used and know how to use machinery and tools required in plate and sheet metal work. They must be familiar with factors determining the strength properties of steels and with their effects on the strength of structures. They must be familiar with the typical applications of different measuring methods and be able to perform measurements. They must be familiar with marking out techniques, implements and symbols used in plate, sheet metal and steel structural work as well as with basic measurement concepts and drawing techniques in the theory of flat pattern layouts. They must be able to select suitable lifting and transfer equipment and be familiar with the accident risks and occupational safety requirements related to lifting and transfers. They must know how to perform finishing and protective measures to prevent corrosion.

Candidates must demonstrate welding skills required of International Plate Welders in two of the following welding processes: MMA welding (111), MAG welding (135), flux-cored wire

metal-arc welding with active gas shield (136), MIG welding (131) and TIG welding (141). They must also demonstrate welding skills required of International Fillet Welders in a third of the above-mentioned welding processes or in one of the following processes: submerged arc welding (121), plasma welding (15), spot welding (21) or seam welding (22). In addition, candidates must pass the theoretical welding test organised by the Welding Society of Finland (WSF).

Candidates taking the joining module must command general basic welding skills and knowledge and know how to carry out TIG welding and either MAG or MIG welding at tube and plate levels. They must command resistance welding and the principles of laser welding and arc brazing. They must know how to join different materials by bonding, mechanical press fits and self-piercing riveting. They must be familiar with the most common sheet metal materials and know how to handle these.

Candidates must be able to perform welding tasks in both modules so as to satisfy the requirements of quality level B as specified in standard SFS-EN ISO 5817. They must be able to assess visually and perform measurements to check that welds satisfy relevant quality and geometric requirements.

Candidates must know how to plan working phases and control and supervise production and planning. They must be capable of training, instructing and coaching as well as filtering their own know-how to other people.

Those who have chosen the entrepreneurship module must command requirements and measures relating to entrepreneurship.

Those who have completed the qualification may work in highly skilled positions related to installation, welding and plate and sheet metal work and to servicing and maintenance in engineering shops, shipyards and on construction sites.

Specialist Qualification for Toolmakers

The common modules of the qualification are *general working life skills*, *general toolmaking skills* and *workplace co-operation skills*. In addition, three of the following modules must also be chosen: *specialised competence in toolmaking*, *specialised manual machining techniques*, *laser sintering*, *patternmaking*, *tools for composite laminated products*, *making rapid patterns*, *making cutting tools*, *manual spinning*, *NC turning*, *NC milling (machining centres)*, *NC boring*, *NC grinding*, *NC jig grinding*, *NC electro-discharge machining (die-sinking EDM)*, *NC electro-discharge machining (wire EDM)*, *pre-setting/preparation*, *high-speed machining*, *electrode making*, *5-axis/multiaxis machining*, *NC spinning*, *production automation (flexible manufacturing systems)*, *assembly and servicing of tools*, *finishing and polishing*, *repair welding*, *heat treatment*, *coating methods and coating*, *material testing methods*, *preparation of CAM paths*, *modelling*, *tool design*, *filling analyses*, *measurement and quality control*, *international activities*, *project management*, *production planning*, *preparation and servicing of tooling and automation systems*, *preparation of fasteners and clamping systems*, *hydraulic and pneumatic systems*. Candidates may not select two manual machining techniques or the manual and numerical forms of the same machining technique.

In addition, candidates are free to incorporate the *entrepreneurship* module as part of their qualification.

Candidates must possess good abilities to function in their working community and environment. They must be able to work safely, economically and to a high quality standard, taking the environment into account. They must know how to perform lifts and transfers and use

information technology. They must be familiar with statutes and agreements relevant to their occupational field. They must be able to guide other people in their area of assignments and to work as supervisors.

Candidates must be familiar with the structures of moulds, pressing tools and instruments related to clamping of pieces and automation of production. They must know how to select tool manufacturing methods and to make sets of tools within their own specialisation area. They must know how to make individual pieces conforming to drawings, fulfilling the quality requirements and involving special requirements in terms of dimensional accuracy and surface quality, using manual machine tools.

Candidates must know how to use 3D CAD systems and data transmission methods. They must know how to read working drawings and plan working phases and work processes. They must be capable of calculating manufacturing dimensions and documenting their work. They must be able to interpret standards, working drawings, assembly drawings, CAD models and parts lists. They must be familiar with typical toolmaking reference data related to tool structures and manufacturing methods. They must have an in-depth command of materials technology and be familiar with the materials used in industrial production within their specialisation area.

Those who have completed the qualification may work in highly skilled assignments and supervisory positions in toolmaking companies or as independent entrepreneurs.

Specialist Qualification for Welders

The common modules of the qualification are *MMA Welder's Diploma (EW/IW) at fillet, plate and tube welding levels*; *MIG/MAG Welder's Diploma (EW/IW) at fillet, plate and tube welding levels*; *TIG Welder's Diploma (EW/IW) at fillet, plate and tube welding levels* and *occupational technology for specialist welders*. One of the following modules must also be chosen: *MMA welding skills for welding practitioners*, *MIG/MAG welding skills for welding practitioners* and *TIG welding skills for welding practitioners*. In addition, it is possible to take the following optional modules: *Welding Specialist's Diploma (EWS/IWS)*, *Welding Practitioner's Diploma (EWP/IWP)*, *welding skills for welding instructors* and *entrepreneurship*.

Candidates must command welding tasks at different levels, using different processes and base metals. Competence tests to demonstrate vocational skills use diplomas and training programmes from the European Welding Federation (EWF) or the International Institute of Welding (IIW).

In the Welder's Diploma modules, the base material is to be selected from material groups 1, 2, 3, 8, 10 and 11 (ISO/TR 15608). Skills are to be demonstrated in three processes using at least two (2) steel grades falling within different material groups, while one of the selected steel grades must be from group 8 or 10. The base material to be welded in competence tests may not be changed when moving from one process-specific qualification level to the next.

Welding work is to be carried out in compliance with standard SFS-EN 287-1. The acceptance limit is quality level B as specified in the SFS-EN ISO 5817 standard. Exceptions are excess weld metal (butt and fillet weld), excessive convexity, excess throat thickness and excessive penetration, where the requirement is quality level C.

Candidates must be able to assess visually and perform measurements to check that welds satisfy relevant quality and geometric requirements.

Candidates must possess theoretical knowledge in accordance with theoretical modules A, B

and C included as part of international welder qualifications. Module A includes knowledge required of International Fillet Welders. Topics include use of electricity in arc welding, welding plants, occupational health and safety, welding consumables, welding performance and groove preparation methods. Module B upgrades the theoretical education provided in module A to International Plate Welder level. The module covers the following topics: introduction to steel; welded plate joints; weldability of steels; shrinkage, residual stresses and deformations; welding defects; overview of welding processes; safe site work; inspection and testing; welding quality assurance. Module C upgrades the theoretical education provided in modules A and B to International Tube Welder level. The topics include tube welds, base materials other than non-alloy steel and international welding standards.

Candidates taking the Welding Practitioner's Diploma module must command welding skills required of welding practitioners in terms of their chosen process. They must choose two material groups per process for competence tests. Neither of these may be the same as any material group welded to the equivalent process as part of a Welder's Diploma module.

Those who have completed the qualification may work in different types of demanding welding assignments.

ELECTRICAL AND AUTOMATION ENGINEERING

VOCATIONAL QUALIFICATION

- Vocational Qualification in Electrical Engineering

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification for Automation Assemblers
- Further Qualification for Electricians
- Further Qualification in the Electronics and Power Industry
- Further Qualification for Electronics Assemblers
- Further Qualification for Household Appliance Fitters
- Further Qualification for Power Plant Mechanics
- Further Qualification for Power Plant Operators
- Further Qualification for Rail Traffic Safety Device Fitters

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification for Automation Assemblers
- Specialist Qualification for Electronics Assemblers
- Specialist Qualification for Electricians
- Specialist Qualification for Power Plant Mechanics

Vocational Qualification in Electrical Engineering

The compulsory module common to all competence areas of the qualification are *basic skills in electrical engineering*. The qualification title is Fitter.

The compulsory module of the competence area in automation technology and maintenance is *basic electrical work in industrialised construction and basic electrical production controls*. One of the following modules must also be taken: *manufacturing automation, process automation*. In addition, three of the following modules (2 = equivalent to two modules) must also be taken: *basics of manufacturing automation (2), hydraulics and pneumatics (2), building automation, low-voltage and information systems in buildings, basics of process automation (2), power electronics, computer operating systems, computer telecommunications, computer hardware structures, basic skills in hydraulics and pneumatics*. Candidates who have chosen the manufacturing automation module may not select the basics of manufacturing automation module and those who have chosen the process automation module may not select the basics of process automation module.

The compulsory module of the competence area in electronics and telecommunications is *basic skills in electronics and telecommunications*. One or two of the following modules must also be taken: *electronics, computer technology, telecommunications technology*. In addition, candidates who have chosen one of the above-mentioned modules must also take three of the following modules: *manufacturing automation controls, process automation adjustments and controls, power electronics, television engineering, video engineering*.

The compulsory modules of the competence area in electrical engineering and energy technology are *basic electrical work in industrialised construction and basic electrical production controls and electrical engineering and energy technology*. Three of the following modules (2 = equivalent to two modules) must also be taken: *hydraulics and pneumatics (2), basics of manufacturing automation (2), building automation, maintenance management, basics of process automation (2), power electronics, computer*

operating systems, computer telecommunications, computer hardware structures, basic skills in hydraulics and pneumatics, installation of power supply systems with voltages of more than 1 kV.

Candidates must be familiar with basic electrical quantities and related calculations. They must be able to use analogue and digital multimeters and an oscilloscope. They must be able to draw up circuit diagrams related to basic switchings. They must be familiar with the characteristics of basic analogue and digital electronics components and be able to analyse the operations of basic switchings composed of these. They must be able to identify construction materials from the standpoint of electrical installation work and be able to select appropriate equipment, installation materials and tools for each task. They must be able to interpret engineering drawings and the construction sector's plane, cross-section, façade and layout drawings and to draw them. They must be able to install the computer peripherals according to user instructions and use computers to produce documents, communicate and acquire information. They are required to take the hot work course, a written test according to the safety at electrical work standard and undergo first aid training. In addition, they must command the skills and knowledge of their chosen competence area.

Those who have completed the qualification possess basic skills in installation, servicing and maintenance assignments in the electrical engineering field as well as specialised competence in accordance with their chosen modules.

Further Qualification for Automation Assemblers

The modules of the qualification are *general skills of automation assemblers* and *safety and risk management*.

Candidates specialising in **process automation** must also take the *pneumatics, hydraulics, motor drives and programmable logic control (PLC)* module. In addition, they must either take *process automation installations* or *process competence, control engineering and measurement technology* and *automation systems*.

Those specialising in **manufacturing automation** must also select the *mechatronics* and *electrical and control engineering* modules and either *manufacturing automation installations* or *electronics* and either *programmable logic control* or *computerised numerical control*.

Those specialising in **building automation** must also select the following modules: *process competence, cabling, field equipment and installations* and *building automation systems*. In addition, they must take one of the following modules: *lighting control systems, heating, plumbing, ventilation and refrigeration systems* and *building information systems*.

In addition, candidates may take the *entrepreneurship* module.

Candidates must know how to perform automation tasks relating to process or manufacturing or building automation independently and as members of working groups in compliance with effective regulations and instructions. They must be familiar with graphical symbols used in their own area of automation and be able to read automation diagrams and other drawings relating to the system. They must know how to make the necessary changes to automation diagrams and be familiar with relevant handling procedures. They must know how to make use of English-language documents in accordance with practices in the field. They must know how to work in a customer-focused and economical manner and to a high quality standard and to make use of IT equipment and software.

Acceptable performance requires a valid certificate for Electrical Safety Code Examination 3, the hot work card, electrical safety training conforming to standard SFS 6002 and relevant first aid training.

Those who have completed the qualification may work in demanding installation, implementation, maintenance and servicing assignments related to the control, adjustment and monitoring equipment of automatic machinery and systems.

Further Qualification for Electronics Assemblers

The common modules of the qualification are *general skills and basic electronics* and *Electrical Safety Code Examination 3*. Two of the following optional modules must also be taken: *audio technology, television technology, video technology, industrial electronic equipment, embedded industrial systems, sector-specific specialisation* (one of the following sectors should be selected: wireless data communication/equipment, marine electronics, vehicle electronics, military applications, office automation, entertainment electronics, radar, GPS), *industrial production management, a module from the Further or Specialist Qualifications for Automation Assemblers, Electricians, Computer Mechanics or Telecommunications Fitters* (this module should not test basic skills or focus on the sector already selected). In addition, it is also possible to take the *entrepreneurship* module.

Candidates must be able to take occupational safety and electrical safety regulations into account in their actions. They must understand the significance of the quality of work to the usability and marketability of products and must aim to achieve the most economical end results possible in terms of both individual customers and the business enterprise. They must possess co-operation skills and be able to combine skilled work with good marketing and service approaches. They must command the drawing standards and symbols used on installation and equipment diagrams within the electronics industry. They must know how to use computers for putting together and editing documentation on electronic equipment, install application software and exploit information networks. They must be familiar with the effects of electromagnetic radiation on components and be conscious of the significance of the electromagnetic compatibility of components to the functionality and reliability of electronic equipment.

Candidates must know how to use common measuring equipment in the field and attend to its condition. They must be familiar with the properties and applications of commonly used electromechanic, passive, analogue and digital components and know how to install components in equipment. They must identify the electrical properties of passive components on the basis of symbols and know how to seek analogue and digital component data with the aid of type designations. They must be familiar with the basic connections composed of basic components used in the electronics industry and know how to detect and repair any defects in them. They must also be able to manage installation, servicing and testing tasks with the aid of English-language instructions, using a dictionary. In addition, they must command the skills and knowledge of their chosen optional modules.

Candidates are required to take the Electrical Safety Code Examination 3, unless they already hold a valid certificate for it.

Those who have completed the qualification may work in installation, repair and servicing assignments of industrial electronic equipment and consumer electronic equipment.

Further Qualification in the Electronics and Power Industry

The compulsory module of the qualification is *basic skills*. Candidates must select one manufacturing technology module (*manufacturing of electronic products, manufacturing of printed circuit board assemblies, manufacturing of printed circuit boards, manufacturing of components, manufacturing of electrical products, manufacturing of electrical machinery or manufacturing of cables and conductors*) and one production process management module (*command of production management systems, quality inspection and testing, basic statistical concepts, clean room technology and culture or materials management functions and logistics*). In addition, candidates must also select two modules, which may not be from the previously chosen area (*electrical measurements and troubleshooting, basics of analogue electronics and digital technology, electromechanical components, electrical components, mechanical components, circuit board technology, cables and connectors, production automation, programmable logic controllers and installation of these, computer structures and functions, basics of telecommunications technology and optical data transmission or television and radio technology*). In addition, it is also possible to select the *entrepreneurship* module.

Candidates must be familiar with the effects of quality systems and capable of achieving the standard of quality required of work and each product. They must know the effects of different methods on the total costs of work and must be able to schedule work assignments. They must also be able to deal with installation, assembly, servicing and testing tasks using English-language documentation and be capable of using information technology. They must be familiar with accident risks and occupational health hazards in their working environment and command safety and protection measures. They must be familiar with the principles of direct current. They must be able to explain the meaning of electricity, electrical charge, conductors, insulators, semiconductors, electrical field and direct current. They must be familiar with basic electrical quantities, units and proportions of quantities and be able to use different techniques to measure components safely and properly. They must be familiar with the basics of alternating current and its uses in equipment.

Candidates specialising in manufacturing of electronic products must know how to assemble electronic products, using assembly instructions and regulations and appropriate tools and techniques. They must be able to select manual soldering tools, join conductors, connectors and switches in a reliable and high-quality manner, complying with electrical safety regulations. They must be familiar with measuring technology and quantities, be able to test products and eliminate or repair the most common malfunctions.

Candidates specialising in manufacturing printed circuit board assemblies must be familiar with the phases of manufacturing printed circuit board assemblies using surface-mounted devices and through connections. They must be familiar with the composition and properties of solder pastes and printing techniques and machinery. They must be familiar with the assembly machinery of different surface-mounted devices, the operating principles of reflow ovens and flow soldering machinery and with testing methods used in manufacturing printed circuit board assemblies.

Candidates specialising in manufacturing printed circuit boards must be familiar with the phases of manufacturing printed circuit boards. They must be familiar with the operating principles of electroplating, copper etching techniques, checking methods, circuit board protective coating techniques and equipment required for these tasks. They must be familiar with the most common structures and types of multilayer printed boards and their manufacturing techniques.

Candidates specialising in manufacturing components must be familiar with the different phases of manufacturing components. They must be familiar with the common working methods used in manufacturing and command those that they need and know how to use machinery and equipment as required. In addition, they must be familiar with the principles of production management, know how to perform tests and adjustments and command packaging of products.

Candidates specialising in manufacturing electrical products must be familiar with the general operating principles of manufacturing electrical products, know how to build product frames or skeletons, be familiar with component structures and functions, know how to fit components, be familiar with conductors and connectors and know how to wire electrical products and connect conductors.

Candidates specialising in manufacturing electrical machinery must be familiar with the general operating principles of manufacturing electrical rotating machinery and transformers, be able to describe voltage levels and their significance and take measurements. They must be familiar with the most common conductive and insulating materials and with their proper handling and storage. They must understand the effects of voltage when making insulations and clearances.

Candidates specialising in manufacturing cables and conductors must be familiar with the significance of standards and other regulations in manufacturing cables and conductors. They must be familiar with the manufacturing process and related working phases, the most common cable and conductor materials and the structures of cables and semiconductors being manufactured. They must be able to read design plans and work orders. They must be able to perform the working phases related to their own area of assignments and to measure and record the properties of semiconductors or cables.

Those who have completed the qualification may work in business enterprises manufacturing electrical and electronic products.

Further Qualification for Electricians

The common modules of the qualification are *general skills of electricians*, *safety and risk management* and *electrical installation technology*. In addition, candidates specialising in industrial electrical installations must also take the *electric motor drives* and *programmable logic controllers* modules and either *manufacturing automation* or *process automation*. Those specialising in electrical installations in properties must choose three of the following modules: *general cabling*, *antenna systems*, *fire alarm systems*, *burglar alarm systems*, *building automation*, *public address systems*, *video surveillance systems*, *access control systems* and *call systems*. Those specialising in electrical installations on ships must choose one of the following modules: *machinery systems*, *deck systems* and *interior systems*. In addition, all candidates may choose to take the *entrepreneurship* module.

Candidates must be able to perform electrical fitting tasks in properties and installations of power distribution systems with voltages not exceeding 1 kV, information systems, automation equipment and electric motor drives in accordance with electrical safety regulations and the location and enclosure protection classes. They must know how to select fitting materials and methods and to perform the required cost, schedule and materials calculations. They must know how to install the cables related to the fitting of the above-mentioned equipment and to perform tests related to commissioning. They must command user instruction. Checking their

own work at each stage constitutes an essential part of the work performance.

Those who have completed the qualification may undertake different types of demanding installation, repair and modification assignments within the field of electrical engineering.

Further Qualification for Household Appliance Fitters

The common modules of the qualification are *general field-specific skills; electrical engineering, electronics and electrical safety regulations and fitting and connection of appliances*.

Candidates **specialising in household appliances** must also take the following modules: *installations, repairs and servicing of washing appliances; installations, repairs and servicing of refrigeration equipment and installations, repairs and servicing of heating and small appliances*.

In addition to the common modules, those **specialising in institutional appliances** must also take three of the following modules: *institutional dishwashers, institutional heating equipment, institutional refrigeration equipment and institutional washing machines*.

In addition, it is also possible to take the *gas appliances* and *entrepreneurship* module.

Candidates must know how to work safely and economically. They must be able to guide customers in selection and use of appliances. They must be familiar with effective regulations and recommendations and the basics of the Consumer Protection Act.

Candidates must be familiar with the basics of electrical engineering. They must understand the basics of direct and alternating current technology and the effects of various components on the functionality of appliances.

Candidates must know how to carry out connection work, choose materials and substances and perform measurements.

Candidates must hold a certificate for Electrical Safety Code Examination 3.

Candidates must be familiar with the electrical distribution systems of machinery and equipment, cable colours from different periods and installation regulations. They must know how to connect fixed and semi-fixed household and institutional electrical equipment to the electrical network. They must know how to interpret equipment diagrams, read electrical drawings and make changes to these. They must know how to perform electrical work safely and properly and carry out protective earthing of equipment. They must know how to install mains cables conforming to regulations into appliances, check and test installations and carry out commissioning inspections. They must know how to select and install cables.

Candidates must command installations, repairs and servicing of appliances within their chosen specialisation area. They must recognise appliance malfunctions. They must be able to identify and locate causes of malfunctions in electronically controlled appliances and carry out necessary repairs. They must know how to perform necessary safety measurements on appliances.

Candidates taking the module 'installations, repairs and servicing of refrigeration equipment' must also hold a hot work pass.

In addition, those taking the gas appliances module must also take the written Class P or C Certificate examination for gas installations, unless they already hold a valid certificate to cover this.

Those taking the entrepreneurship module must be familiar with different forms of enterprise and command skills and knowledge relating to setting up and running a business enterprise.

Further Qualification for Power Plant Mechanics

The modules of the qualification are *electrical safety regulations* and at least one of the following broad modules: *overhead line engineering 2, underground line engineering 2, substation engineering 2, measuring techniques 2, electric railway technology 2, power line technology 2*. In addition, three of the following modules must also be taken: *overhead line engineering 1, underground line engineering 1, substation engineering 1, measuring techniques 1, electric railway technology 1, customer service tasks, electrical power network operation*.

Depending on their chosen options, candidates must be able to perform overhead line and/or underground line and/or distribution substation and switch plant tasks and/or electric track and/or power line tasks and the mechanical and electrical dimensioning work related to these. They must be able to deal with the preliminary preparations for installations and with customer service so as to achieve the most economical end results possible in terms of individual electricity users, electricity distribution and customers. They must know how to pinpoint and repair defects in electricity networks and equipment using measuring devices. They must be able to define the correct cross-sectional area of a line and to dimension the cable screening. They must know how to select the fitting materials and methods and to perform the necessary cost, schedule and materials calculations. They must take the relevant regulations, occupational safety and the costs and overall economy into account in their work. They must also be able to deal with fitting, servicing and testing tasks with the aid of English-language documentation, using a dictionary.

Those who have completed the qualification may work in demanding electrical installation, electrification, repair and alteration assignments and in monitoring, operating and service tasks related to electricity distribution networks.

Further Qualification for Power Plant Operators

The common modules of the qualification are *general skills of power plant mechanics* and *electrical safety regulations, safety and risk management*. In addition, one of the following broad modules must be selected: *overhead line engineering 2, underground line engineering 2, substation engineering 2, measurement techniques 2, electric track technology 2* and *power line technology 2*. Three of the following modules must also be taken: *overhead line engineering 1, underground line engineering 1, substation engineering 1, measurement techniques 1, electric track technology 1, road and area lighting, customer service tasks* and *electrical power network operating tasks*. One of these may be replaced with a module from the Further Qualifications for Electricians, Telecommunications Fitters or Rail Traffic Safety Device Fitters or from the Specialist Qualification for Telecommunications Fitters. The replacement module may not measure basic skills or focus on a previously chosen area. In addition, it is also possible to take the *entrepreneurship* module.

Candidates must be able to attend to occupational safety. They must comply with the structural and testing regulations set out in standards SFS 6000, SFS 6001 and SFS 6002 and overhead power line regulations. They must be able to deal with the preliminary preparations for installations and with customer service so as to achieve the most economical and useful end results possible in terms of individual electricity users, electricity distribution and customers.

Candidates must possess sufficient language, IT and working community skills. They must command documentation and graphical symbols used in the field. They must know how to

select installation materials and methods and to perform the required cost, schedule and materials calculations.

Candidates must hold a valid certificate for Electrical Safety Code Examination 2 or 1 and they must have completed electrical safety training conforming to standard SFS 6002 and first aid training. They must command electrical safety and be familiar with protective equipment and use of it.

Candidates must be capable of independent installation work within their chosen area of technology and related mechanical and electrical measurements. They must be able to read maps, structural drawings and working diagrams. They must take environmental requirements into account in their work.

Those who have completed the qualification may work in demanding electrical installation, electrification, repair and alteration assignments and in monitoring, operating and service tasks related to electricity distribution networks.

Further Qualification for Rail Traffic Safety Device Fitters

The compulsory modules of the qualification are *Electrical Safety Code Examination 2, inter-lockings, automatic train control* and *outdoor equipment*. Two of the following optional modules must also be taken: *cabling, measuring technology, installation of electrical equipment, level crossing equipment, power supply equipment, blocking* and *hump equipment*. In addition, it is also possible to take the *entrepreneurship* module.

Candidates are required to hold or obtain at least a valid certificate for the Electrical Safety Code Examination 2 demonstrating knowledge of electrical safety regulations. They must be familiar with the operating principles of interlockings as well as with different types of interlockings and the differences between them. They must be familiar with the graphical signs and symbols used on safety equipment diagrams as well as with operating instructions and interlocking tables.

Candidates must be familiar with the train control system and must know how to install the train control equipment and different junction systems included in railway tracks as well as to program the equipment related to train control. They must be familiar with different types of track circuits, switches used and other equipment related to these, as well as with signalling systems.

Candidates must know how to make the electrical connections of track circuits, switches and signals and also to perform measurements and adjustments related to their implementation. They must be able to perform troubleshooting and repair tasks as well as expansion and alteration work with the aid of drawings. They must be capable of using the technical documents, source material and measuring equipment needed in their work.

Candidates must choose appropriate materials, supplies, working methods and equipment and use these economically. They must be capable of assessing the time needed for an assignment (effects on traffic). They must know how to produce the required documentation and field books, taking the quality system into account. They must co-operate with traffic controllers and stakeholder groups in accordance with good service principles. In their work, they must comply with train, electrical and occupational safety regulations as well as with other instructions issued on safety. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification may work in assignments related to electrical installation, servicing and repair of rail traffic devices.

Specialist Qualification for Automation Assemblers

The modules of the qualification are *electrical safety regulations* and *testing and commissioning operations*. At least three of the following modules must also be taken: *cabling, drawing up installation work plans, programming of automation equipment, design of automation applications*.

Candidates must be able to perform the electrical and mechanical installation of programmable logic controllers, unit regulators, automation systems and electric motor drives and the related sensors and regulating units, the design, dimensioning and installation of cabling, and testing and commissioning of systems in accordance with electrical safety regulations and the requirements set by screening. They must know how to select installation materials and to perform the necessary cost, schedule and materials calculations.

They must be able to make software alterations and write test programs for the above-mentioned systems and to follow the progress of programs and processes with the aid of documentation and programming tools. They must also be able to deal with installation and servicing measures with the aid of English-language documentation, using a dictionary.

Those who have completed the qualification may work in high-skilled positions and in workplace instruction and supervisory assignments.

Specialist Qualification for Electricians

The compulsory modules of the qualification are *general skills of electricians, safety and risk management* and *electrical installation technology*. In addition, candidates specialising in industrial electrical installations must also take the *electric motor drives* and *programmable logic controllers* modules and either *manufacturing automation* or *process automation*. Those specialising in electrical installations in properties must take three of the following modules: *general cabling, antenna systems, fire alarm systems, burglar alarm systems, building automation, public address systems, video surveillance systems, access control systems, call systems* and *installations exceeding 1,000 V*. Those specialising in electrical installations on ships must take one of the following modules: *machinery systems, deck systems* and *interior systems*. In addition, it is also possible to take the *entrepreneurship* module.

Depending on their specialisation area, candidates must be able to install and cable automation and control technology solutions, information systems and electric motor drives in industrial plants, properties or on ships and prepare working plans for these. They must know how to locate and repair any possible faults in equipment. They must be able to carry out tests and provide instructions for use in relation to commissioning. They must be able to provide on-site workplace instruction. They must also be able to deal with installation and servicing measures with the aid of English-language documentation, using a dictionary.

Candidates must be familiar with the occupational safety regulations governing their field.

Those who have completed the qualification may work positions demanding very good vocational skills and in workplace instruction, supervisory and planning assignments in the field.

Specialist Qualification for Electronics Assemblers

The common modules of the qualification are *general skills and basic electronics* and *Electrical Safety Code Examination 3*. Three of the following optional modules must also be taken: *audio technology*, *television technology*, *video technology*, *industrial electronic equipment*, *embedded industrial systems*, *sector-specific specialisation* (one of the following sectors should be selected: wireless data communication/equipment, marine electronics, vehicle electronics, military applications, office automation, entertainment electronics, radars, GPS), *industrial production management*, *a module of the Specialist Qualifications for Automation Assemblers, Electricians, Computer Mechanics or Telecommunications Fitters* (the module should not test basic skills or focus on the sector already selected). In addition, it is also possible to take the *entrepreneurship* module.

Candidates must know how to apply their co-operation and interaction skills to different work situations and be capable of providing new staff with orientation. They must take occupational safety and electrical safety regulations into account in all their actions. In terms of repairs and selection of spare parts, they must know how to apply electrical safety regulations governing the modification of the structure of the device being repaired, where necessary. They must understand the significance of the quality of work to the usability and marketability of products and must aim to achieve the most economical end results possible in terms of both individual customers and the business enterprise. They must also know how to guide customers over the telephone and to combine skilled work with good marketing and service approaches. They must command the drawing standards and symbols used on installation and equipment diagrams within the electronics industry. They must know how to use computers for putting together and editing documentation on electronic equipment, install application software and exploit information networks. They must be familiar with the effects of electromagnetic radiation on components and with the significance of the electromagnetic compatibility of components to the functionality and reliability of electronic equipment. They must know how to use common measuring equipment in the field in a diverse manner, assess the precision required for the measuring task at hand and attend to its condition. They must command the properties and applications of electromechanic, passive, analogue and digital components used in the electronics industry and know how to install components in equipment. They must be able to determine the electrical and mechanical properties of components with the aid of data books, component symbols and measurements. They must know how to determine the dimensions for the components of basic connections and to plan and build relatively small devices on the basis of the required operating parameters. They must be able to repair electronic devices and, where necessary, acquire and use manufacturers' maintenance manuals and other documentation. They must also be able to manage installation, servicing and testing tasks with the aid of English-language instructions, using a dictionary. In addition, they must command the skills and knowledge of their chosen optional modules.

Candidates are required to take the Electrical Safety Code Examination 3, unless they already hold a valid certificate for it.

Those who have completed the qualification may work in high-skilled positions in the electronics industry as well as in its workplace instruction and guidance assignments.

Those who have completed the qualification may work as fitters in enterprises installing and servicing household and/or institutional appliances or as independent entrepreneurs.

Specialist Qualification for Power Plant Mechanics

The compulsory module of the qualification is *Electrical Safety Code Examination 1*. Four of the following nine optional modules must also be taken: *designing a distribution network, building a distribution network, operating a distribution network, designing an electric railway network, building an electric railway network, operating an electric railway network, substation work, supervisory assignments, customer service assignments*.

Candidates must be able to carry out electricity network design tasks. They must be able to perform building, measurement, protection and operating work and a variety of switching tasks and repairs of defects, taking account of the protection of cable outputs required in different installation conditions. In supervisory assignments, they must be able to manage the planning and organisation of network construction, operation and customer service work. They must deal with the safety requirements associated with work assignments and with the requirements of work supervision, be conscious of costs and aim to achieve economical end results. They must be able to deal with workplace instruction. They must also be able to perform the necessary installation and servicing measures with the aid of English-language documentation, using a dictionary.

Those who have completed the qualification may work in high-skilled positions and in workplace instruction, supervisory and planning assignments.

INFORMATION AND TELECOMMUNICATIONS TECHNOLOGY

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification for Computer Mechanics
- Further Qualification for Telecommunications Fitters

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification for Computer Mechanics
- Specialist Qualification for Telecommunications Fitters

Further Qualification for Computer Mechanics

The common modules of the qualification are *basic skills*, *Electrical Safety Code Examination 3*, *computer technology* and *LAN technology*. In addition, two of the following modules must also be selected: *LAN services*, *router networks and public LAN services*, *software installation*, *computer electronics* and *special systems*. In the *special systems* module, one of the following submodules must be chosen: *fire alarm systems*, *burglar alarm systems*, *building automation*, *video surveillance systems* or *access control systems*. In addition, it is also possible to select the *entrepreneurship* module.

Candidates must have good abilities to function in working communities and environments and skills to work in customer service. They must be conscious of costs and quality. They must be able to read and interpret documents used in their field. They must also be able to manage installation, servicing and testing tasks with the aid of English-language instructions. They must be able to document their work. They must command the most common office applications.

Candidates must hold a certificate for Electrical Safety Code Examination 3, electrical safety training conforming to standard SFS 6002 and first aid training.

Candidates must know how to configure, install, update, service and repair desktop and laptop computers operating in the PC environment and carry out related administration and maintenance tasks. They must be familiar with and know how to use the properties of different components and settings. They must command peripherals and operating systems. They must be familiar with data security and virus risks and know how to act accordingly.

Candidates must command the communications architecture, hardware, connections, protocols, software, implementation and operation of local area networks. They must be familiar with LAN cabling and know how to make use of networks and various types of software.

In addition, candidates must command the skills and knowledge of their chosen modules.

Those who have completed the qualification may work in assignments related to the installation, use, servicing and repairs of personal computers and their peripherals and information networks.

Further Qualification for Telecommunications Fitters

The common module of the qualification is *basics of telecommunications technology*. In addition, at least two of the following modules must also be chosen: *cabling work and network measurements*, *telephone exchanges and systems*, *switching centres*, *backbone and transmission networks*, *wireless networks*, *Internet*

and broadband technology, access control and security systems, cable television and antenna systems. In addition, it is also possible to take the *entrepreneurship* module.

Candidates must command basic electrical engineering skills and knowledge. They must be familiar with the most common cables and cabling systems used in telecommunications networks and their basic measurements. They must command the architectures, operating principles and basic services of telecommunications networks and be familiar with the most typical active devices. They must command electrical safety legislation governing the telecommunications sector to the extent determined by standards. They must be familiar with working methods generally applied in the sector and the principles of business administration and customer service.

Candidates must command standards, working methods, measuring techniques and documentation used in cabling. They must be capable of installing systems according to documentation provided and be familiar with interfaces to the public exchange, peripheral equipment and the local area network. They must be familiar with equipment control and monitoring systems and remotely performed control and modification work. They must know how to carry out routine installation and measuring work relating to operation and maintenance functions. They must understand the significance of secured and uninterrupted telecommunications.

Candidates must be familiar with the basic concepts of various transmission systems within a telecommunications network, telecommunications protocols, documentation and synchronisation of the telecommunications network. They must know how to use and install various installation cables and connectors. They must be familiar with telecommunications network devices and peripherals connected to these as well as with the control and monitoring systems of such equipment. They must understand the levels of accuracy required for installation and measurements of transmission systems and the significance of careful installation work to uninterrupted telecommunications. They must be familiar with the architecture and operations of wireless telecommunications networks and the functional and operating principles of the most popular antenna systems.

Candidates must know how to install and set up radio equipment and perform related measurements. They must be familiar with the architecture and functions of the Internet and the computer modifications required by the Internet. They must be familiar with the operating principles of the most common alarm and surveillance systems and alarm transfer to remote surveillance systems. They must command laws, regulations and confidentiality regulations and guidelines relating to the use of surveillance systems and cable television and antenna systems, understanding the significance of data security.

Candidates must command the basics of antenna systems, be familiar with the devices and components used in these and understand their operations. They must also be familiar with the architectures and operating principles of such systems and documentation methods used in the sector.

Those choosing the entrepreneurship module must be able to assess their own entrepreneurial potential and be familiar with the requirements involved in entrepreneurship and setting up a business enterprise.

Those who have completed the qualification may work for telecommunications companies in assignments requiring vocational skills in the field.

Specialist Qualification for Computer Mechanics

The common modules of the qualification are *basic skills*, *Electrical Safety Code Examination 3*, *computer technology* and *LAN technology*. In addition, two of the following modules must also be selected: *LAN services, router networks and public LAN services*, *software installation*, *computer electronics* and *special systems*. In the *special systems* module, one of the following submodules must be chosen: *fire alarm systems*, *burglar alarm systems*, *building automation*, *video surveillance systems* and *access control systems*. In addition, it is possible to take the *entrepreneurship* module.

Candidates must have good abilities to function in working communities and environments and skills to work in customer service. They must be conscious of costs and quality. They must be able to read and interpret documents used in their field and also be able to manage installation, servicing and testing tasks with the aid of English-language instructions. They must be able to document their work. They must command the most common office applications.

Candidates must hold a certificate for Electrical Safety Code Examination 3, electrical safety training conforming to standard SFS 6002 and first aid training.

Candidates must know how to configure, install, update, service and repair desktop and laptop computers operating in the PC environment and carry out related administration and maintenance tasks. They must also command the special characteristics and installations of servers. They must command the properties and use of different components and settings. They must command peripherals and operating systems. They must know how to connect devices to different networks and configure these. They must be familiar with data security and virus risks, know how to prepare for such risks and act accordingly.

Candidates must command the communications architecture, hardware, connections, protocols, software, implementation and operation of local area networks. They must also command wireless devices and VLAN settings and STP and MAC protocols. They must be familiar with LAN cabling and know how to make use of networks and various types of software. They must know how to design LAN installation, prepare a quotation and plan the project.

In addition, candidates must command specialist skills and knowledge of their chosen modules.

Those who have completed the qualification may work in highly skilled positions related to the installation, use, servicing and repairs of personal computers and their peripherals and information networks.

Specialist Qualification for Telecommunications Fitters

The qualification comprises the following common modules: *basics of telecommunications technology*, *design and cost accounting* and *Electrical Safety Code Examination 3*. In addition, at least two of the following modules must also be chosen: *cabling work and network measurements*, *telephone exchanges and systems*, *switching centres*, *backbone and transmission networks*, *wireless networks*, *Internet and broadband technology*, *access control and security systems*, *cable television and antenna systems*. In addition, it is also possible to take the *entrepreneurship* module.

Candidates must command basic electrical engineering skills and knowledge. They must be familiar with the most common cables and cabling systems used in communications networks

and their basic measurements. They must command the architectures, operating principles and basic services of communications networks and be familiar with the most typical active devices.

Candidates must command electrical safety legislation governing the telecommunications sector as determined by standards. They must be familiar with working methods and documentation generally applied in the sector and the principles of business administration and customer service.

Candidates must be familiar with the Communications Market Act, the Land Use and Building Act and official regulations relating to construction of telecommunications networks and they must know how to design a relatively small-scale telecommunications and information network. They must be familiar with the principles of economic activities, being aware of material volumes in telecommunications networks and understanding the cost structure of installation activities.

Candidates must hold a valid certificate for Electrical Safety Code Examination 3 (or 2 or 1).

Candidates must command standards, working methods and measuring techniques used in cabling. They must be able to install systems according to documentation provided and be familiar with interfaces to the public exchange, peripheral equipment and the local area network.

Candidates must be familiar with equipment control and monitoring systems and remotely performed control and modification work. They must know how to carry out routine installation and measuring work relating to operation and maintenance functions. They must understand the significance of secured and uninterrupted telecommunications and data transmission. They must be familiar with the basic concepts of various transmission systems within a telecommunications network, telecommunications protocols, documentation and synchronisation of the telecommunications network.

Candidates must know how to use and install various installation cables and connectors. They must be familiar with telecommunications network devices and peripherals connected to these as well as control and monitoring systems of such equipment. They must understand that installation and measurements of transmission systems require accuracy and that careful installation activities guarantee uninterrupted telecommunications.

Candidates must be familiar with the architecture and operations of wireless telecommunications networks and the functional and operating principles of the most popular antenna systems. They must know how to install and set up radio equipment and perform related measurements. They must be familiar with the architecture and functions of the Internet. They must be aware of the computer modifications required by the Internet.

Candidates must be familiar with the operating principles of the most common alarm and surveillance systems and alarm transfer to remote surveillance systems. They must command the basics of antenna systems, be familiar with the devices and components used in these and understand their operations. They must also be familiar with the architectures and operating principles of such systems.

Candidates must command laws, regulations and confidentiality regulations and guide-lines governing cable television and antenna systems and relating to the use of surveillance systems, understanding the significance of data security.

Those choosing the entrepreneurship module must be able to assess their own entrepreneurial potential and be familiar with the requirements involved in entrepreneurship and setting up a business enterprise.

Those who have completed the qualification may work for telecommunications companies in assignments requiring vocational skills in the field.

GRAPHICS AND COMMUNICATIONS TECHNOLOGY

VOCATIONAL QUALIFICATION

- Vocational Qualification in Publishing and Printing

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification in Digital Printing
- Further Qualification for Bindery Operators
- Further Qualification in Bookbinding
- Further Qualification in Printing
- Further Qualification in Printing Surface Preparation

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification in Bookbinding
- Specialist Qualification in Machine Bookbinding
- Specialist Qualification in Page Layout
- Specialist Qualification in Printing/Rotary Printing
- Specialist Qualification in Printing Technology
- Specialist Qualification for Print-Shop Supervisors

Vocational Qualification in Publishing and Printing

The compulsory module of the qualification common to all is *basic publishing and printing skills*. The compulsory modules of the competence area in layout design are *graphic design, page make-up and publishing* and *computer output and network media*. Three of the following optional modules must also be taken: *basic skills in printing technology, basic skills in finishing technology, basic skills in maintenance management, colour management and proofing techniques, production planning and standardisation, custom work, maintenance management, digital printing*. The compulsory modules of the competence area in printing technology are *printing techniques* and *finishing techniques and basic maintenance management skills*. Three of the following optional modules must also be taken: *typography and make-up of publications, imposition and output, image processing and web publishing, press make-ready, printing, finishing, maintenance management, digital printing*. The qualification title is Printing Assistant.

Candidates who have chosen the competence area in layout design must know how to apply the key principles of typography to planning and implementing mono- and polychrome prints and electronic publications. They must know how to edit and process digital files and use desktop publishing, graphics and image processing software. They must be familiar with page make-up rules and know how to make up pages for different publications. They must command the basics of photography and the operating principles of different types of scanners, know how to edit images and be familiar with copyright issues relating to images.

Candidates must know how to impose pages independently and be familiar with different output and proofing techniques. They must be familiar with the development process of films as well as with the principles of printing surface preparation and digital printing. They must know how to prepare web pages and to upload them onto a network. They must know how to use a particular database application and the most common telecommunications services.

Candidates who have chosen the competence area in printing technology must know how to use an offset press and to service it daily and weekly. They must know how to measure and

assess printing quality. They must be familiar with the structures and operating principles of the most common digital printing presses as well as with the operating principle of electrophotography. They must be familiar with the structures, operating principles and printing techniques of screen, web, flexographic and gravure printing presses as well as with the most common types of printed matter produced using these presses.

They must be aware of the operations and tasks of finishing systems as well as of the working phases on a finishing line and must know how to work at finishing machines. They must command the basics of mechanics, electrotechnology, pneumatics, hydraulics and automation related to printing presses and finishing machinery and be able to perform basic servicing and adjustment tasks related to maintenance management.

Candidates must be able to perceive the printing production chain as a whole and to apply quality thinking in their work. They must be familiar with the materials used in the preparation of prints and the effects of different cost factors on the price of prints. They must command the basic use of computers as well as the key properties of the most common operating systems used in the publishing and printing field. They must also manage in work situations in the English language. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification have extensive vocational skills to carry out basic work assignments in the publishing and printing field and, depending on their chosen competence area, either for the design of communication products or for working at different printing presses.

Further Qualification in Digital Printing

The common modules of the qualification are *general skills and knowledge in communications, basic digital printing skills and knowledge* and *basics of digital printing production technology*. Two of the following modules must also be selected: *page makeup and file preparation, imposition management, specialist competence in page make-up and image-processing, colour management, finishing of printed matter* and *variable data management*. In addition, it is also possible to select the *entrepreneurship* module.

Electrophotography is by far the most common printing technique used by digital printers. In this technique, also known as xerography, powdered ink (toner) is transferred onto a sheet of paper by means of electricity and photosensitive material. Other digital printing techniques include liquid toner electrophotography and ink-jet technology. Digital printing presses are divided into sheet-fed and web printing machines.

Digital printing can meet several ongoing trends in printing, such as short-run printing, print-on-demand, distribute-and-print and variable data printing. Digital printing enables short product lead times, printing on plastic and fabric in addition to paper and reprinting of printed matter as a result of databases.

Candidates must know how to set up a printing press as required for each specific assignment, including feeding printing materials and printing inks into the machine. In addition, the work involves quality pre-setting tasks, test printing and final quality setting as well as actual printing and management, control and measurement of print product quality and machine operations during execution and reporting on the results.

Basic machine maintenance management and daily servicing and cleaning measures are also included in a digital printer's tasks, as well as attendance to occupational health and safety and

environmental considerations. Candidates must command information technology, because the workflow and control of a digital printing press is fully computerised. Candidates must also understand imposition and colour management, although these have traditionally been part of prepress operators' competence. In addition, they must command all tasks from customer service to delivery of finished products.

User instructions for digital printing presses and messages shown by process control equipment are mainly in English. Digital printers must know how to take account of the requirements set by the process of finishing products. In variable data printing, each sheet can be personalised in accordance with customer wishes. This is one of the most significant forms of added value provided by digital printing technology. Digital printers must be able to take account of the special requirements of the production system in terms of variable data.

Those who have completed the qualification may work in creative information production fields, such as design and advertising agencies, editorial offices and communications departments within such organisations or in various printing establishments in the occupational fields of printing surface preparation, printing, bindery operation and bookbinding.

Further Qualification for Bindery Operators

The common modules of the qualification are *basic communications skills and knowledge* and *basic bindery operating skills and knowledge*. One of the following specialisation areas must also be selected: *industrial bookbinding; industrial production of journals, magazines and brochures; finishing on specific machinery* or *newspaper dispatch*. In addition, candidates must select one module to demonstrate command of parallel work assignments in the occupational field and one module to demonstrate command of auxiliary assignments related to vocational competence. In addition to these, it is also possible to select the *entrepreneurship* module.

Candidates must command post-press finishing of printed matter on individual machines or on fairly short machine lines. They must be aware of the phases and processes of industrial finishing of printed matter. They must be familiar with materials used in production and must know how to combine these in accordance with product requirements. They must understand the operations and maintenance management of the equipment, machinery and production lines that they use and they must be capable of identifying the most common causes of malfunctions. They must be capable of controlling and supervising the quality of products.

Candidates must be familiar with the work processes used in finishing printed matter in their own specialisation area and with different equipment, machinery, production lines, materials and supplies. They must be able to plan the finishing work of printed matter and select the necessary means and methods of production.

Those who have completed the qualification may work in demanding assignments according to their chosen specialisation area.

Further Qualification in Bookbinding

The modules of the qualification are *basic communications skills and knowledge*, *basic bookbinding skills and knowledge* and *making hand-bound products*. In addition, candidates must also select one module to demonstrate command of parallel work assignments in the occupational field (*customer service*

and cost accounting for binding work, operation of production machinery in support of hand-binding or printing bindery bench work) and one module to demonstrate command of auxiliary assignments related to vocational competence (*bookbinder as an entrepreneur or operation of industrial bindery machinery*). In addition to these, it is also possible to select the *entrepreneurship* module.

The vocational skills requirements of the qualification emphasise craftsmanship. Candidates must be able to make both classical and modern products. They are also required to be able to design the appearance of product bindings independently and to have a creative arts and crafts vision of hand-binding.

Candidates must command hand-binding phases and processes and the use of the most important machinery and equipment. They must be familiar with materials and they must know how to combine these in accordance with product requirements. They must be familiar with the basic binding decoration techniques and the materials, supplies and tools used for these.

They must understand the operations and maintenance management of the equipment and machinery that they use and they must be capable of identifying the most common causes of malfunctions. They must recognise high-quality products and must be able to avoid defects in quality.

They must be aware of industrial book production processes and techniques and the most important machinery used for book production. They must be aware of the main principles of book restoration.

Those who have completed the qualification may work in demanding assignments both in industrial binderies and in hand-binding.

Further Qualification in Printing

The common modules of the qualification are *basic communications skills and knowledge* and *basic printing skills and knowledge*. Candidates may specialise in the following areas: *sheet-fed offset printing, heatset offset printing, newspaper offset printing, gravure printing, screen printing, flexographic printing or special printing techniques*. The qualification also includes the *printing production assignments* module in accordance with the specialisation area. In addition, candidates must also select one module to demonstrate command of parallel work assignments in the occupational field and one module to demonstrate command of auxiliary assignments related to vocational competence. In addition to these, it is also possible to select the *entrepreneurship* module.

Candidates must be familiar with offset printing and other printing techniques. They must command the printing process in their own specialisation area in both monochrome and multicolour work. They must be familiar with materials used in printing and must know how to combine these as required for each assignment.

Candidates must be familiar with the equipment, machinery, production lines, materials and supplies used in their own specialisation area. They must understand the operations and maintenance management of the equipment and machinery that they use and they must be capable of identifying the most common causes of malfunctions. They must be capable of controlling and supervising the quality of products.

They must be able to plan the implementation of a printing assignment, select the necessary means and methods of production and carry out the assignment.

Those who have completed the qualification may work in printing assignments on printing presses, in quality control and in parallel and auxiliary printing assignments.

Further Qualification in Printing Surface Preparation

The common modules of the qualification are *basic communications skills and knowledge* and *basic printing surface preparation skills and knowledge*. One of the following specialisation areas must also be selected: *production assignments in desktop publishing*, *production assignments in image processing*, *production assignments in computer-aided printing surface preparation* or *systems support assignments in printing surface preparation*. In addition, candidates must also select one module to demonstrate command of parallel work assignments in the occupational field and one module to demonstrate command of auxiliary assignments related to vocational competence. In addition to these, it is also possible to select the *entrepreneurship* module.

Candidates must be very familiar with modern techniques employed in the production of printed matter, with the most important sub-processes and working phases involved in printing surface preparation and with the rules and principles of designing printed matter.

They must command the use of data processing systems, the most important equipment and application software in printing surface preparation. They must be aware of the special requirements set for files by different printing processes, communication media and data transmission methods.

They must understand the principles of the operations and maintenance management of the systems, equipment, networks and telecommunications that they use and they must be capable of identifying the most common causes of malfunctions affecting users. They must be capable of controlling and supervising the quality of products.

They must be able to plan the required tasks and edit and collate material into a printing surface for a press-ready, versatile product.

Those working in printing surface preparation prepare the contents of printed matter and convert them into digital format. They then edit and design files to create the layout for the printed media and output the publications that they have prepared to film or printing surfaces.

Those who have completed the qualification may work in assignments related to the design of printed matter, imaging, desktop publishing and imposition, film imposition and the preparation of printing plates as well as in assignments related to file management using IT systems and to data transmission using intranets, extranets and the Internet.

Specialist Qualification in Bookbinding

The common modules of the qualification are *command of book production*, *command of hand-binding*, *workplace training* and *command of planning and development*. In addition, candidates must choose either *supervisory skills* or *entrepreneurship*.

Candidates must be familiar with the print production process and understand the quality concepts used in the graphics industry and know how to apply these to their own work. They must be able to assess and control the quality of printed and bound matter at all stages and to draw up a schedule and cost estimate for their work. They must possess in-depth knowledge of hand-binding and art-binding of books in different eras and of management of factors influencing their quality.

They must be acquainted with the functions and maintenance of small machinery used in finishing and with various materials. They must know how to design and prepare a hand-bound book conforming to a specific era, using decoration, titling and working methods of that era.

They must be able to justify their material choices and understand the effects of these on book costs.

Candidates must know how to repair books, taking the properties and intended uses of individual books into account. They must understand the significance of book restoration and know how to handle old materials. They must be able to function in training, instruction and orientation assignments and as organisers of training events. They must know how to instruct and guide people in the working phases of their own specialisation area, to assess the profitability and cost-efficiency of functions and to identify development targets. They must be able to implement a demanding project that they have planned themselves. They must be acquainted with the requirements and obligations of business operations and be capable of assessing their own entrepreneurial qualities and business ideas. They must command the basics of cost accounting. They must be familiar with the significance of occupational safety, labour law and agreements relating to environmental protection to their work and business operations. They must be familiar with the general principles of human behaviour and group dynamics and be capable of leading group activities as required.

Candidates must be capable of smooth co-operation with customers and subcontractors. They must be capable of working as members of working communities and, where necessary, of leading activities and functioning as experts in their field. They must be capable of expressing themselves well both orally and in writing and of instructing customers and other members of their working community. In addition, they must possess the ability to train skilled workers in their own field in the use and management of correct working methods. They must command the basics of information technology and one foreign language.

Work assignments of master bookbinders fall within the finishing area of printing production. They may specialise in industrial bookbinding, work at small enterprises' service binderies or libraries or as independent entrepreneurs.

Specialist Qualification in Machine Bookbinding

The common modules of the qualification are *quality and finishing of printed matter, workplace training* and *management of planning and development*. Those who have not completed the Further Qualification for Bindery Operators must also take the *management of finishing machinery or machine lines* module. In addition, all candidates must choose either the *entrepreneurship* or *supervisory work* module.

Candidates must understand the quality concepts used in the graphics industry and know how to apply these to their own work. They must be familiar with the cost structure of production and the principles of quality systems. They must be well acquainted with printing production as a whole. They must be well acquainted with working phases, equipment and software used by printing houses.

Candidates must understand different printing techniques. They must understand factors influencing printing quality, such as the most common defects, and they must be aware of the significance of printing surface preparation. They must be well acquainted with the finishing machinery, machine lines and working phases in their specialisation area as well as materials used in production. They must be familiar with the structures, main components and functionality of machinery and equipment. They must know how to plan the workflow of printed matter so as to make it efficient and economical.

Candidates must understand the significance of tests and be able to assess quality requirements in different finishing phases. They must know how to plan, provide instructions for, assess and analyse product testing operations. They must understand the significance of maintenance management of finishing machinery or lines to productivity and service life and the quality of printed matter. They must know how to troubleshoot faults and malfunctions and be able to read maintenance drawings. They must be able to plan and schedule finishing maintenance and assess occupational safety and environmental effects. In addition, they must be capable of smooth customer service and be able to co-operate with people skilled in different phases.

Candidates must be capable of good oral and written communication and they must command one foreign language and relevant information technology. They must understand the requirements of environmental protection, occupational safety and labour legislation and the significance of business economics. They must be able to act as workplace trainers in their own field in instruction, training and orientation assignments and as organisers of training events. They must command project planning. They must be able to prepare a tentative plan for a production-related planning, development or research project to demonstrate in-depth vocational competence. They must know how to carry out the project that they have planned and report on it both orally and in writing. They must command the technical structural solutions, operating principles, production run and quality control of finishing machinery or production lines and must know how to service the machinery and lines.

In addition, candidates must command the requirements of their chosen entrepreneurship or supervisory work module.

Those who have completed the qualification may work in demanding production assignments involving printed media and matter, in supervisory positions in the field or as independent entrepreneurs.

Specialist Qualification in Page Layout

The common modules of the qualification are *print quality and printing surface preparation*, *workplace training* and *management of planning and development*. In addition, one of the following modules must be chosen: *entrepreneurship* or *supervisory work*.

The work of page layout specialists includes planning of printing work, page make-up, image processing, graphics production, production of printer's proofs and customer service.

Candidates must command the hardware and software used in the field, be familiar with different file formats and file transfer methods used in the graphics industry and be able to maintain data security and quality control.

Candidates must command customer service and also be capable of acting as trainers of their teams. Since the technological development of hardware and software used in the field is very fast, page layout specialists must maintain their vocational skills through continuous study and active participation in process development within their own working community.

Candidates must have in-depth knowledge of the entire print production process and of the factors influencing the quality of end products. They must also know how to perform their work such that the end results can be used in on-line communication and other electronic media, in addition to the proof.

Where necessary, candidates must know how to set up a unit focusing on printing surface preparation, design work areas, acquire appropriate hardware and software and train other workers within the unit. They must know how to determine effective workflows and working methods for the unit in order to maintain quality and efficiency. They must also know how to report on the unit's working methods and operations both orally and in writing.

Those who have completed the qualification may work in demanding production assignments involving printed media and matter, in supervisory positions or as independent entrepreneurs.

Specialist Qualification in Printing/Rotary Printing

The common modules of the qualification are *quality improvement of printed matter, workplace training and management of planning and development*. Those who have not completed the Further Qualification in Printing must also take the *printing and printing press management* module. In addition, all candidates must take either the *entrepreneurship* or *supervisory work* module.

Work assignments of specialist printers or specialist rotary printers fall within the field of printing production. They may specialise in the following areas, according to different printing techniques and press types: offset sheet, heatset, flexographic, gravure, screen or newspaper printing press, specialised printing or digital printing.

The most essential functions of specialist printers or specialist rotary printers include implementation of printing assignments from printing surface preparation to printing, quality control and quality setting of products being printed, efficient and economical printing of products on a printing press and auxiliary tasks related to printing, such as print-plate making and logistics and materials management functions related to printing.

Candidates must have in-depth knowledge of both management of factors influencing the quality of printed matter on a printing press and of co-ordination of printing conditions, maintenance, materials and auxiliary agents so as to ensure that the printing process functions as smoothly as possible, resulting in excellent print quality. In addition, they must be well acquainted with the issues of occupational health and safety and environmental protection within the printing department and they must be able to take these into account in different phases of printing work. They must be capable of good communication with customers and other members of their working community and, where necessary, guide them orally and in writing as they carry out their work and solve work-related problems. In addition, they must know how to naturally train customers or skilled workers in their own field in the use of correct working methods and process management, so as to produce good quality results. They must know how to report the results of their work and any observations made during its execution in an understandable way and to produce instructions in order to improve working methods and the quality of both products and operations. They must have good command of occupational terminology and be able to understand customers' wishes concerning the layout of the print media and how to carry out the assignment. In addition, they must be able to answer customers' questions and, where necessary, negotiate terms and conditions of work performance.

The requirement for practical proficiency in a foreign language means that candidates must be capable of making out general instructions related to print production concerning topics such as the size and colour of printed matter, the print run, indications of acceptance or rejection, or simple repair instructions. They must understand instructions concerning

occupational safety and maintenance management of the most common production equipment that they use even in a foreign language and know how to act accordingly.

Those who have completed the qualification may work in demanding production assignments involving printed media and matter, in supervisory positions in the field or as independent entrepreneurs.

Specialist Qualification in Printing Technology

One of the following modules must be chosen as the specialisation module of the qualification: *basic information technology skills*, *basic production technology skills*, *basic production economics skills*. Other compulsory modules are *general communications skills and knowledge*, *command of managerial duties*, *command of special assignments* (one of the following competence areas, which may not be one of those included in the chosen specialisation module, must be taken: design of printing and publishing products and printing surface preparation; design and preparation of network communication products and uploading them onto the distribution system; printing production management; post-press production management; production planning; staff and working community development and in-service training; customer services, sales and marketing; installation and deployment of data processing systems; development of production equipment, production automation or production environments) as well as *command of design and development*. In addition to the above-mentioned modules, it is possible to take the *entrepreneurship* module.

Candidates must be familiar with the communication field as a branch of industry as well as with its products and production or preparation processes. They must understand the relationships of basic events in the public and business economies with their field and business enterprise. They must be able to interpret profit and loss accounts and balance sheets and be capable of assessing the profitability and cost-efficiency of the functions entrusted to them. They must have basic knowledge of mechanical and electrical engineering needed for the operation and maintenance management of the machinery and equipment used in the field. They must possess the competence needed in their work assignments in mathematics, natural sciences and information technology both in PC and Macintosh environments. They must understand the significance of high-quality operations to productivity and profitability. They must manage in oral and written language use situations as well as in their practical work assignments in their chosen foreign language. They must be capable of assessing different management methods and the opportunities to apply these in their own work and organisation. They must be able to plan, organise, supervise and support individual and team activities. They must take environmental protection, occupational safety and ergonomics into account. They must cope with interaction and public performance situations and written and oral reports related to their work. They must command the skills and knowledge of their chosen special assignment. They must be familiar with the division of their communication enterprise and its operating environment according to their specialisation area. They must know how to plan and budget the operations of their unit and those of its closely linked areas. They must be familiar with available business opportunities as well as with the development of administration, staff, means of production and information systems so as to be able to draw up justified development, adjustment or investment plans.

Those who have completed the qualification may work in printing industry positions requiring extensive techno-economic knowledge and management skills, such as supervisors and workplace instructors, team and project leaders, production planners or quality controllers.

Specialist Qualification for Print-Shop Supervisors

The common modules of the qualification are *basic print-shop supervision skills and knowledge* and *command of planning and development*. In addition, at least one of the following modules must also be selected: *supervisory functions*, *sales and marketing* and *entrepreneurship*.

Candidates must understand the quality concepts used in the graphics industry and know how to apply these to their work. They must be very familiar with printing production as a whole, its quality requirements and factors influencing productivity. They must understand production methods and factors influencing printing quality. They must be familiar with the machinery, machine lines, working phases and materials used. They must command maintenance management of the production process.

Candidates must be capable of working as members of working communities, understand the significance of interaction between different stakeholders and command customer service. They must command written and oral communication in Finnish or Swedish, one foreign language and the basics of information technology. They must understand environmental effects, occupational safety and labour legislation and the significance of work-related agreements. They must understand the significance of workplace orientation and training. They must look after their own working ability.

Candidates must be able to prepare a tentative plan for a planning, development or research project to demonstrate in-depth vocational competence. They must be able to implement a demanding project that they have planned. They must be able to work as supervisors. They must understand the significance of business economics. They must have an overview of management and leadership in their own organisation. They must be able to follow and manage the finances and marketing of their own unit. They must command various leadership situations with different types of people and possess communication and interaction skills. They must be familiar with the significance of creativity and problem-solving abilities in supervisory work. They must be familiar with the services and products of their business enterprise and command practical sales work.

Candidates must command marketing communications and be familiar with communications equipment. They must know how to plan and implement campaigns and events. They must be able to assess their own entrepreneurial qualities and opportunities. They must be able to clarify the steps involved in setting up a business enterprise. They must be aware of the obligations and requirements involved in business operations.

Those who have completed the qualification may work as production, sales or public relations supervisors at printing presses.

FOOD SCIENCE, FOOD INDUSTRY AND BIOTECHNOLOGY

VOCATIONAL QUALIFICATION

- Vocational Qualification in Food Production

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification for Bakers
- Further Qualification in the Bakery Industry
- Further Qualification for Confectioners
- Further Qualification in the Dairy Industry
- Further Qualification in the Food Industry
- Further Qualification in Food Processing
- Further Qualification in the Meat Industry
- Further Qualification in Meat Processing
- Further Qualification in Milk Processing

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification for Confectioners
- Specialist Qualification for Bakers
- Specialist Qualification in Food Technology

Vocational Qualification in Food Production

The compulsory module common to all competence areas of the qualification is *basic skills in food production*.

The compulsory modules of the competence area in food technology (Foods Maker) are *food production processes* and *packing of products*. Five of the following optional modules must also be taken: *preparation of food products; industrial preparation of food products; preparation of berry and fruit products; handling and processing of vegetables; handling and processing of fish; preparation of sweets; preparation of chocolate; production of beverages; packing, storage and dispatch functions*.

The compulsory modules of the competence area in baking (Baker-confectioner) are *preparation of bakery products* and *preparation of confectionery products*. A total of six optional modules must also be taken, at least two of which must be from the following modules: *bakery operations; industrial baking; preparation of special bakery products; preparation of layer cakes and French pastries; preparation of pastries*. The remaining four modules may be selected from the above-mentioned modules or from the following modules: *packing of products; packing, storage and dispatch functions; preparation of berry and fruit products; handling and processing of vegetables; handling and processing of fish*.

The compulsory modules of the competence area in meat processing (Meat Products Processor) are *manufacturing processes of meat products* and *packing of products*. Five of the following optional modules must also be taken: *slaughtering; meat cutting; industrial meat cutting; preparation of cooked sausages; preparation of whole meat products; preparation of processed meat products; preparation of raw meat products; preparation of special meat products; preparation of preserved meat products; preparation of food products; industrial preparation of food products; packing, storage and dispatch functions*.

The compulsory modules of the competence area in dairy production (Dairy person) are *manufacturing processes for dairy products* and *logistics functions in the dairy industry*. Four of the following optional modules must also be taken: *preparation of milk, cream and UHT products; preparation of*

acidified milk products; preparation of edible fats; preparation of cheeses; preparation of powdered dairy products; preparation of ice cream and special products; quality assurance of dairy products.

Candidates must be able to handle and preserve foodstuffs and to monitor their quality and that of the raw ingredients through sensory evaluation and by means of various chemical and physical measurements. They must be able to assess the effects of nutrients on health and be familiar with the basics of composition of the most common special diets. When making products, they must be able to select the raw ingredients, manufacture foodstuffs under guidance and pack products according to instructions. They must work in accordance with hygiene and occupational safety guidelines and the quality, environmental and self-supervision system of the business enterprise. They must be familiar with the main features of the cost structure of foodstuffs and with the economic foundations of entrepreneurship. They must be able to produce clear reports using information technology and also be familiar with the occupational terminology of their sector in a foreign language.

Those who have completed the qualification possess extensive basic skills for food industry assignments and also the specialised competence required in the manufacturing of dairy products, meat products, bakery products or general food technology products.

Further Qualification in the Bakery Industry

The compulsory modules of the qualification are *dough production* and *paste production*, one of which must be selected. In addition, two of the following modules must also be selected: *shaping, proofing and freezing, proofing and baking* and *packing and logistics in the bakery industry*.

Candidates must understand the phases of the bakery industry process as a whole and, depending on the size of the bakery, command the whole process or their own sub-process. They must understand the significance of hygiene and self-monitoring in their work and act in accordance with these principles. They must be aware of their own responsibilities as producers of industrial goods of uniform quality. They must know how to assure the quality of products. They must understand the effects of their own work on the business enterprise's profitability and financial results. They must be able to work as members of working groups.

Candidates taking the dough production module must be familiar with the dough production process, including related key pre-processing methods. They must be familiar with the properties and behaviour of dough in different phases of production. They must know how to follow recipes and use the machinery and equipment that they need. They must be able to interpret lists of raw ingredients conforming to ordered amounts and prepare dough accordingly.

Candidates taking the paste production module must be aware of the different phases of the production process and be familiar with the differences and meanings of paste and dough production. They must be familiar with the properties and behaviour of various types of paste in different phases of production. They must know how to comply with the production programme and use the machinery and equipment they need. They must be able to interpret lists of raw ingredients conforming to ordered amounts and prepare paste accordingly.

Candidates must be able to comply with the production programme in shaping and know how to adjust the line settings for producing different products and set the equipment to add fillings and treat surfaces. They must be familiar with and know how to use information

technology as necessary in terms of line functionality and be able to report any malfunctions.

Candidates taking the proofing and freezing module must be familiar with the freezing process. Where necessary, they must know how to proof products to be frozen when raw, complying with the production programme. They must know how to perform the surface treatment and finishing of frozen products as required. They must be aware of the properties of products for freezing. They must be familiar with the properties of freezing equipment and know how to adjust these as required.

Candidates taking the proofing and baking module must be familiar with the effects of proofing and baking and possible defects and their effects. They must be able to comply with the production programme and know how to perform necessary inspections and check settings as required during the process phase. They must be able to identify the quality of the product and, where necessary, take corrective action.

Candidates taking the packing and logistics module must be familiar with packing materials and know how to pack products in accordance with production requirements. They must know how to assemble, adjust, operate and clean machinery and equipment. They must know how to use computers and relevant software applications and to draw up and print supplementary material required in their assignments. They must know what logistics services mean and know how to use these. They must be aware of purchasing and ordering procedures.

Those who have completed the qualification may work in bakery industry operating environments, where bakery products are prepared in an automated continuous process typical of line-based production.

Further Qualification for Bakers

The compulsory modules of the qualification are *management of bakery production*, *bread production*, *pastry production*, *production of rolled products* and *production of goods made from whisked paste and mixed dough*. One of the following optional modules must also be taken: *specialised craft*, *entrepreneurship in the baking industry*, *language skills in the baking industry*.

Candidates must identify different bakery products and product groups. They must be familiar with the different phases of preparation and the entire production process from raw ingredients to product packing and storage. They must know how to use the machinery, equipment and small tools used in bakeries and to clean and service them. They must be familiar with the basics of bakery chemistry and nutrition. They must know how to select, handle and store raw ingredients correctly. They must be capable of calculating the amounts of products to make in accordance with individual orders.

They must know how to prepare different types of dough and whisked paste, using different methods, as well as to shape and proof them, treat their surfaces and cook them into different types of products. They must command the cooling and packing of products and be aware of the requirements set for sales package labelling. They must be familiar with the basics of pricing. They must understand the significance of product safety and work in accordance with hygiene and self-supervision requirements and in compliance with food legislation. They must attend to the cleanliness of their working environment and know how to treat and sort waste. They must be familiar with the quality concepts used in the bakery business and be capable of assessing the quality, taste and appearance of products. They must be aware of the phases and principles of product development.

They must be capable of functioning both independently and in groups and of assessing their own work performance. In addition, they must command the skills and knowledge of their chosen optional module.

Those who have completed the qualification may work as bakers in bakery enterprises.

Further Qualification for Confectioners

The compulsory modules of the qualification are *management of confectionery production, production of layer cakes, production of French pastries and swiss rolls, production of rolled products and production of sponge cakes and biscuits*. One of the following optional modules must also be taken: *specialised craft, entrepreneurship in the confectionery business, language skills in the confectionery business*.

Candidates must identify the most common confectionery products and command the production processes and different phases involved in the manual preparation of products. They must know how to use the common machinery, equipment and small tools used in confectioneries and to clean and service them. They must be familiar with the basics of confectionery chemistry and nutrition. They must know how to select, handle and store raw ingredients correctly. They must be capable of calculating the amounts of paste and products needed according to individual orders.

Candidates must know how to plan and prepare layer cakes, pastries, swiss rolls, biscuits, sponge cakes and different types of rolled confectionery products. They must be capable of assessing the quality, taste and appearance of products and their own work performance. They must be familiar with the quality concepts used in the confectionery business and know how to apply self-supervision in their work. They must know how to pack and store products properly and be familiar with regulations issued on sales package labelling. They must be aware of product price formation and the principles of product development. They must understand the significance of product safety and work in accordance with the requirements of hygiene and food legislation. They must attend to the cleanliness of their working environment and know how to treat and sort waste. They must be able to function independently and in co-operation with other employees. In addition, they must command the skills and knowledge of their chosen optional module.

Those who have completed the qualification may work in confectioneries with different business ideas and at confectionery departments within bakeries.

Further Qualification in the Dairy Industry

The common module of the qualification is *operating processes in the dairy industry*.

In addition, one of the following modules must also be selected: *industrial manufacturing of fresh products, industrial manufacturing of cheeses, industrial manufacturing of edible fats or spreads, industrial manufacturing of powdered products, industrial manufacturing of ice cream or special products, packing in the dairy industry and storage work in production plants*.

Candidates must be familiar with the properties and quality requirements of milk and raw ingredients used in production and they must have an overview of the production and processing chain as a whole. They must be familiar with the main features of microbial activity central to the dairy industry. They must understand the significance of washing and disinfecting

operations and purity monitoring, commanding the principles involved and understanding joint responsibility for such operations.

Candidates must have an overview of the logistics chain of dairy products and the different stages of the cold chain. They must take into account occupational safety and maintenance of their working ability. They must comply with proper, hygienic and environmentally friendly working methods.

In their chosen optional module (industrial manufacturing of fresh products, industrial manufacturing of cheeses, industrial manufacturing of edible fats or spreads, industrial manufacturing of powdered products, industrial manufacturing of ice cream or special products), candidates must be familiar with the product groups of the module and their key properties. They must possess in-depth knowledge of the special properties of raw ingredients used, with additives and auxiliary agents and their proper dosage and actions. They must be able to work in auxiliary production assignments. They must function competently in all working phases of the process. They must be aware of the main operating principles of product manufacturing equipment. They must command general requirements set for packing and know how to handle products appropriately. They must know how to assess the quality of finished products through sensory evaluation. They must know the most common product defects and be aware of possible causes of these.

Candidates taking the packing in the dairy industry module must know how to pack and/or repack dairy products conforming to quality standards in compliance with the production plan. They must attend to work-related technological recording to information systems. They must be familiar with the packing materials and supplies that they use, their key properties and storage and application methods. They must be familiar with the main principles of logistic packing development and packing planning.

Candidates taking the storage work in production plants module must be familiar with products to be stored and know how to place these in different storage facilities and appropriate storage conditions. They must know how to use information systems and other equipment needed in their work. They must be familiar with material flows in general terms. They must be able to carry out key assignments related to storage and be capable of providing orientation for new staff. They must be able to take special risks involved in their work into account. They must take cost-efficiency into account in their work, understanding everyone's opportunities to influence cost development.

Those who have completed the qualification may work in a packing department, storage room, product manufacturing or process laboratory within a dairy enterprise.

Further Qualification in the Food Industry

The compulsory module of the qualification is *operating processes in the food industry*. One of the following optional modules must also be taken: *industrial production of processed fish products, industrial production of processed vegetable products, manufacturing of biscuits, industrial processing of berry and fruit products, manufacturing of grain mill products, industrial chocolate and sweets production, industrial manufacturing of beer and cider, industrial manufacturing of wine, industrial manufacturing of beverages, industrial production of prepared foods, logistics in the food industry*.

Candidates must be familiar with the production chain in food production and the industrial food manufacturing process from raw ingredients to completed products, according to their

line of production. They must correctly identify and choose raw ingredients and be aware of the effects of a particular processing method and time on the completed product. They must know how to apply their knowledge of the micro-organism activity to practical situations and be aware of the effects of food poisoning and food infections. They must be familiar with machinery and equipment and be capable of controlling production by means of automation and, where necessary, of adjusting automation equipment. They must understand the importance of quality control and implement the self-supervision plan. In their work, they must take occupational safety requirements and the hygiene requirements stipulated by law into account throughout the manufacturing process. They must comply with the principles of sustainable development in waste treatment. They must be acquainted with packing, storage and dispatch functions and must know how to keep track of deliveries. They must plan and assess their own work and co-operate with other members of their working community in a flexible manner. They must be familiar with the principles of business operations and understand the effects of their own contributions on the financial results. In addition, they must command the skills and knowledge of their chosen optional module.

Those who have completed the qualification are skilled makers of food products.

Further Qualification in Food Processing

The compulsory module of the qualification is *handling of raw food ingredients*. Two of the following optional modules must also be taken: *manufacturing of processed fish products; processing of vegetables; processing of wild berries, herbs and mushrooms; processing of berries and fruits; manufacturing of processed potato products; processing of mushrooms; manufacturing of chocolate products; manufacturing of sweets; manufacturing of beer; manufacturing of beverages; manufacturing of cereal products; manufacturing of food products; information technology and logistics in food processing; entrepreneurship; a module of some other further qualification*.

Candidates must be familiar with the overall process of food processing and its different phases as well as with the manufacturing process of one foodstuff from raw ingredients to completed products. They must know how to select, store and handle raw ingredients and to determine their quality through sensory evaluation. They must be acquainted with the hygiene risks of products and work in a hygienic and responsible manner. They must be familiar with the basics of microbiology and know how to apply their knowledge of the micro-organism activity to practical situations. They must be familiar with the special features of food production and of functioning in food production facilities, know how to use machinery and equipment automation and be able to monitor the smooth running of the production process. They must be acquainted with packing, storage and dispatch functions, the general principles of food packing and the statutes governing packing functions. They must understand the basics of product development, food chemistry and nutrition as well as the essential legislation governing the field. They must plan and assess their own work, comply with the self-supervision plan and co-operate flexibly with members of their working community. In their work, they must take account of economical, safety and environmental considerations as well as sustainable development. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification are competent makers of foods, who have a good command of the production processes within their own field.

Further Qualification in the Meat Industry

The common module of the qualification is *knowledge and processing of raw material in the meat industry*. In addition, one of the following modules must also be taken: *slaughtering, meat cutting, manufacturing process of raw meat products, manufacturing process of cooked sausages, manufacturing process of processed meat products, manufacturing process of whole meat products, logistics in the meat industry*.

Candidates must be familiar with the properties and composition of meat. They must be familiar with the production chain as a whole. They must be familiar with the properties of good meat and inspection techniques. They must know how to determine the suitability of meat as a raw material. They must be aware of the effects of processing on the raw material. They must know how to preserve meat properly and they must attend to their own hygiene and that of their working environment. They must know how to work safely and attend to quality. They must be capable of functioning in working communities and they must have an overview of internal entrepreneurship.

Candidates must be able to work in compliance with food legislation. They must be familiar with the principles of equipment and machinery. They must be capable of using and servicing equipment and machinery. They must be familiar with the significance of quality and know how to work so as to preserve quality. They must take occupational safety and effective working methods into account. They must act in accordance with the business enterprise's self-supervision programme and contribute to developing it.

In addition, candidates who have chosen the slaughtering module must also command the different working phases of slaughtering (stunning, skinning or scalding and dehairing, gutting, evisceration, splitting, washing and cooling).

Those who have chosen the meat cutting module must command different working phases of the cutting plant process (cutting up, boning, producing cuts of meat, sorting and packing).

Those who have chosen the manufacturing process of raw meat products module must be familiar with the manufacturing process of raw meat products and know how to function independently during different phases of work (handling meat raw material, salting, seasoning or portioning and packing).

Those who have chosen the manufacturing process of cooked sausages module must be familiar with the manufacturing process of cooked sausages and know how to function in different phases of work (pretreatment of raw ingredients, preparation of mixture, stuffing into casings, cooking and packing).

Those who have chosen the manufacturing process of processed meat products module must be familiar with the manufacturing process of processed meat products and know how to function in different phases of work (pretreatment of raw ingredients, preparation of mixture, portioning, cooking, slicing and packing).

Those who have chosen the logistics in the meat industry module must understand the significance of logistics. They may work in packing, storage and dispatch department assignments and for logistics centres. They must know how to use information technology. They must be able to deal with logistics services.

Those who have completed the qualification may work within the meat industry as butchers, meat cutters, manufacturers of meat products or as workers in packing, storage or dispatch departments.

Further Qualification in Meat Processing

The common module of the qualification is *meat handling*. Two of the following optional modules must also be taken: *slaughtering; carcass cutting and meat cutting; production of meat products; packing of meat products, customer services and transportation; entrepreneurship; a module of some other further qualification*.

Candidates must be familiar with the production phases used in the meat processing field, the composition and properties of meat as well as with the main working phases of meat processing. They must know how to handle different species of slaughter and game animals. When handling meat, they must act in accordance with the requirements of food legislation. They must know how to use meat processing equipment and repair and maintain their own tools.

Candidates must work in accordance with occupational safety requirements, flexibly and swiftly, taking the different phases of work into account, and so as to conserve the environment. They must be familiar with the effects of different packing alternatives on the preservability of products and must understand the significance of packaging in terms of marketing.

Candidates must know how to preserve and store meat, processed meat products and additives without compromising their quality. They must be familiar with the general principles and special requirements of the transportation and distribution of meat products and statutes steering these operations. They must work in accordance with hygiene requirements and attend to the order, tidiness and cleanliness of their working environment. They must recognise risks to product safety and comply with the self-supervision programme.

Candidates must function in accordance with the ethical principles of their occupation, statutes governing their work and agreements made within the working community. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification may function as competent workers in small-scale and manual-intensive meat processing enterprises that are different in terms of their business ideas and operating methods.

Further Qualification in Milk Processing

The compulsory modules of the qualification are *milk handling, quality control in milk processing and entrepreneurship in milk processing*. Two of the following optional modules must also be taken: *manufacturing of fresh cheeses, manufacturing of matured cheeses, manufacturing of acidified milk products, manufacturing of edible fats and spreads, manufacturing of ice cream and desserts*.

Candidates must be familiar with the composition, properties and production chain of milk. They must be able to assess the processability of milk and know the methods that are used to examine the quality of untreated milk. They must be able to perform general milk treatment operations in a small-scale processing plant and be aware of their effects on the properties and quality of milk. They must be familiar with milk treatment machinery and equipment and with their operating principles. They must be familiar with the packing, preservation, storage and transportation of dairy products.

Candidates must be familiar with statutes and recommendations related to the handling of milk. They must command the main concepts of quality thinking and the principles and documentation of the self-supervision system. They must understand the significance of cleanliness

in their work and attend to their hygiene and to the tidiness of the working environment.

Candidates must use washing and sanitation methods and chemicals safely and appropriately and take environmental protection and waste management issues into account. They must be familiar with forms of enterprise, financial aids, financing channels and co-operation networks. They must be able to assess themselves and their entrepreneurship and to draw up business plans. They must be familiar with the key ratios of their business enterprise and with the principles of cost accounting. They must be able to interpret financial statements and to draw up an approximate budget for their business enterprise. They must understand the significance of customers to business operations. They must be acquainted with the computer software required by entrepreneurs in the food industry. They must know how to make use of expert services, sources of information and networking. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification are equipped to engage in small-scale milk processing activities as independent entrepreneurs.

Specialist Qualification in Food Technology

The common module of the qualification is *food production control*. In addition, one of the following modules must also be selected: *managerial work in the food business*, *sales and marketing in the food business*, *product development in the food business* and *industrial maintenance services in the food business*. The competence test environment is to be selected from the sectors of the food industry as set out in the candidate's individual plan.

The food production control module requires candidates to command the general operating principles of the field and those of their business enterprise. Candidates must be familiar with the order delivery process used by their enterprise and the significance of internal customer relationships. They must be able to plan, control and develop operations within the enterprise and their department.

Candidates must be familiar with food legislation governing their own field and take quality and environmental issues into account in their actions. They must know how to prepare operational plans for their unit, draw up budgets and make comparative calculations, monitor actual costs and take corrective action as required. They must be aware of the significance of hygiene and risk management to a food business.

Managers in the food industry are able to organise, supervise and develop the operations of their own department. This requires candidates to have extensive command of the work and be familiar with labour legislation.

Candidates must be able to plan and organise daily work in accordance with the predetermined performance and quality objectives and to supervise, guide and control personnel to achieve objectives and to comply with safe operating methods. They must know how to use machinery, equipment and tools used within their department. They must be able to provide introduction and guidance for new employees. They must be able to develop quality and self-monitoring measures. They must be able to attend to personnel affairs and be familiar with relevant legislation.

In sales and marketing assignments, candidates must know how to make use of and implement various competitive means of marketing when drawing up sales and marketing plans. They must know how to implement customer-focused sales and marketing efforts. In addition, they must be familiar with machinery, equipment, products, raw ingredients, production methods and

packaging materials used in their field. They must know how to design products.

Candidates must be familiar with contractual legislation and the Consumer Protection Act. They must know how to use information technology in information measures and to make use of electronic mail and the Internet for information acquisition and communication purposes. They must command key terms used in their own field in the English language and be able to clarify basic matters relating to sales and marketing in the English language.

Those operating in product development assignments are required to have the ability to plan and implement product development projects. Candidates must be well acquainted with products and raw ingredients in their field and the behaviour of these within various processes. They must command sensory evaluation and know how to plan and implement sensory tests. They must be familiar with the legislation, package labelling and intellectual property rights applicable to the field. They must take the nutritional significance of their field's products and special dietary requirements into account in their work. They must be co-operative and creative.

Those working in industrial maintenance services must understand the significance of maintenance service functions to a food business. Candidates must be familiar with the maintenance service information system used in their business enterprise and know how to use it in their work. They must know how to keep a maintenance card index. They must be familiar with the main processes of their area of responsibility and with the operating principles of machinery and equipment.

Candidates must monitor the condition of machinery and equipment and perform or request any necessary repairs. They must command the business enterprise's environmental, energy and waste management functions and be familiar with issues relating to access control and safety and security operations.

Those who have completed the qualification may work in the food industry in supervisory, managerial or expert assignments, such as sales, marketing, product development or industrial maintenance services. They may also function as independent entrepreneurs.

Specialist Qualification for Confectioners

The modules of the qualification are *basic confectionery products, pastries and comparable products, layer cakes, rolled products, special products, presentations* and *business management and supervisory assignments*.

Candidates must command confectionery working methods, machinery and equipment so as to be capable of instructing other workers. They must also be familiar with raw ingredients and their properties in special diets and be aware of the effects of various raw ingredients on products. They must be able to price their products profitably, store raw ingredients and products correctly and assume responsibility for the first-class quality of their own products and those of their own unit.

Candidates must command composition, colour theory and lettering and employ their skills to make and design a variety of products. They must understand the significance of good customer service and sales to the continuity of the business enterprise and be able to present their products both orally and in writing.

Those who have completed the qualification may work in sector assignments requiring a high standard of vocational skills and in supervisory and product development assignments.

Specialist Qualification for Bakers

The modules of the qualification are *bread, pastries, confectionery products, prepared bakery products, decorative bakery products and presentations* and *business management and supervisory assignments*. Candidates may specialise either in industrial baking or in small-scale bakery operations.

Candidates must command the working methods, machinery and equipment used in bakeries so as to also be capable of instructing other workers. They must also be familiar with raw ingredients and their properties in special diets and be aware of the effects of raw ingredients on products. They must be able to price their products profitably, store raw materials and products correctly and assume responsibility for the first-class quality of their own products and those of their own unit. They must be familiar with the applications of different types of sponge, souring agents and sweeteners and employ their skills to make and design a variety of products. They must understand the significance of good customer service and sales to the continuity of the business enterprise and be able to present their products both orally and in writing.

Those who have completed the qualification may work in sector assignments requiring a high standard of vocational skills and in supervisory and product development assignments.

PROCESS, CHEMICAL AND MATERIALS ENGINEERING

VOCATIONAL QUALIFICATION

- Vocational Qualification in Boat-building
- Vocational Qualification in Chemical Engineering
- Vocational Qualification in Laboratory Technology
- Vocational Qualification in the Paper Industry
- Vocational Qualification in Plastics and Rubber Technology
- Vocational Qualification in Surface Treatment Technology
- Vocational Qualification in Wood Processing
- Vocational Qualification in Upholstery

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification for Boat-builders
- Further Qualification in Chemical Engineering
- Further Qualification in Corrosion Prevention Painting
- Further Qualification in Glass and Ceramics
- Further Qualification in Industrial Surface Treatment
- Further Qualification for Joinery
- Further Qualification for Painters
- Further Qualification in the Paper Industry
- Further Qualification in Plastics Technology
- Further Qualification in Rubber Processing
- Further Qualification in the Sawmill Industry
- Further Qualification in Wood-based Panel Technology

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification for Boat-builders
- Specialist Qualification in Chemical Engineering
- Specialist Qualification for Joinery
- Specialist Qualification for Painters
- Specialist Qualification in the Paper Industry
- Specialist Qualification for Panel Process Operators
- Specialist Qualification in Plastics Technology
- Specialist Qualification for Sawmill Process Operators
- Specialist Qualification in Surface Treatment

Vocational Qualification in Boat-building

The compulsory modules common to all competence areas of the qualification are *basic wood processing skills*, *basic skills in plastic and metalwork* and *common skills in boat-building*. In addition, two of the following modules must also be taken: *use and maintenance of boats*, *repair technology*, *preparation of moulds*, *rigging work*, *surface treatment*, *upholstery*, *composite building*, *electrical work and installation of navigational equipment*, *entrepreneurship in boat-building*. One of the following competence areas must be selected: *building of glassfibre reinforced plastic boats*, *building of wooden boats*, *building of metal boats*. The qualification title is Boat-builder.

Candidates must be able to apply their knowledge of the properties of wood to the working and use of wood and be familiar with the auxiliary and work materials used in wood processing. They must understand the significance of the humidity and drying of wood, the factors influencing the drying of wood and the principles of drying. In their work, they must take account of the occupational safety and environmental protection requirements of the joinery industry. They must be able to make selections of raw materials and structural solutions suitable for various purposes and to make joinery products according to drawings. They must command the basic structures of the most common production machinery used in the wood industry and servicing and maintenance measures. They must be able to select the correct sharp tool for each woodworking task, assess the condition of tools and replace blunt tools. They must be familiar with the properties required of wood and adhesives in gluing work. They must be able to make the most common reinforced plastic structures and simple joining tasks. They must be familiar with the most common processes, methods and raw materials used in the reinforced plastics industry and their applications. They must use tools, machinery and equipment safely. They must be able to prepare and finish a small open mould and perform simple metal working and joining tasks. They must be able to read technical drawings and draw up simple drawings. They must be able to design a simple boat fulfilling the hydrostatic, hydrodynamic and strength requirements and use computer software to plan boat-building work. They must be able to build a simple wooden boat structure, laminate a simple reinforced plastic boat or build the frame of a metal boat economically and safely. They must be able to make and install fittings in various frames and make simple boat decks from reinforced plastic and wood. They must be able to carry out basic engine installations and related equipment installations in the engine compartment and be familiar with requirements and regulations concerning safe electrical systems. In addition, they must command the skills and knowledge of their chosen modules.

Those who have completed the qualification are equipped to work for enterprises manufacturing, servicing and repairing boats made from a variety of frame and fitting materials and as independent entrepreneurs.

Vocational Qualification in Chemical Engineering

The compulsory modules common to both competence areas of the qualification are *management of unit processes*, *process maintenance management* and *process control*. The compulsory modules of the competence area in chemical engineering are *management of production processes* and *quality and environmental competence*. The compulsory modules of the competence area in biotechnology are *basic skills in biotechnology* and *quality and environmental management of biotechnological processes*. One of the following optional modules must also be taken: *factory-specific advanced competence*, *basic equipment in the process hall and laboratory and their maintenance*, *testing materials and compounds*. The qualification title is Process Operator.

Candidates must be familiar with the various sectors of industry that make use of chemical engineering and biotechnology. They must take the particular occupational safety risks of their sector into account in their work. They must be able to use the most common unit processes and those used by the industries operating in their locality. They must be familiar with the physical and chemical laws of unit processes and be able to solve mathematical problems relating to process management. They must be able to determine the progress of a process from process flowcharts and to describe various processes using standard symbols. They must be able

to use equipment and methods relating to the transportation, storage and packaging of materials to the extent required by their work. They must be familiar with the forms of energy used by a production plant and the means of obtaining them and with the manufacturing of commodities. They must be able to take samples from production and to make the routine physical and chemical determinations required in quality control. They must be able to maintain processes, make observations about the condition of process equipment and attend to its servicing tasks. They must be able to interpret engineering drawings of process equipment and to perform routine maintenance tasks. They must be familiar with the operating principles and safety regulations related to commodity systems. They must be familiar with the electrical safety regulations related to their work and with the basics of electrical engineering. They must be able to take measurements of process quantities, to record and interpret measuring results and to perform the necessary adjustments. They must be able to use the monitoring station of an automation system used in process control and its software. They must be familiar with the procedures of the working community, the basics of business economics and productivity and with the collective agreements of their field. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification possess extensive basic skills to work in process regulation, monitoring and maintenance management assignments in industries applying chemical engineering and biotechnology.

Vocational Qualification in Laboratory Technology

The compulsory modules of qualification are *chemical analysis, basic equipment and maintenance, testing, environmental analysis, equipment analytics, bioanalytics, organic synthetics* and *quality and information management*. Two of the following optional modules must also be taken: *genetic engineering, equipment applications, microbiological applications, industrial processes*. The qualification title is Laboratory Assistant.

Candidates must be able to use and service the most common measuring devices in a laboratory. They must be able to select chemicals according to their purposes and to handle and dispose of chemicals safely. They must be familiar with the symbols of chemistry and with the electron structure of atoms, be able to write the formulae of the most common inorganic compounds and to name the compounds. They must be able to calculate the contents of solutions and to prepare solutions independently. They must command taking, handling and diluting samples. They must be able to perform qualitative analyses according to instructions and to interpret results of analysis. They must be able to make gravimetric and volumetric determinations from various samples. They must be able to draw up written reports on their work as a whole. They must also command the use, maintenance and servicing of basic laboratory equipment using English-language instructions. They must be able to test compounds and materials sensorily and using a variety of mechanical and physical methods. They must be able to take a representative environmental sample and to analyse and assess the changes in nature caused by their activities. They must be able to make chemical and physical determinations from the samples that they take, complying with standards. They must be able to perform basic spectrometric and chromatographic analyses. They must be able to use organic compounds safely, to regulate chemical reactions and to use the most common tools for syntheses. They must be familiar with cell metabolism, understand the significance of substance categories in various bioprocesses

and be able to use living cells in their work. They must be able to cultivate microbes using the most common cultivation techniques, to prepare culture media and to dispose of microbiological waste safely. They must be familiar with the basic principles and application opportunities of genetic engineering. They must work in accordance with the laboratory's quality systems. In their work, they must be able to make use of computers, the most common software and information network services. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification are equipped to work in jobs relating to quality monitoring, product development, research and monitoring of processes in laboratories in various sectors of industry.

Vocational Qualification in the Paper Industry

The compulsory modules common to all competence areas of the qualification are *basic skills in the paper industry*, *mechanical maintenance* and *maintenance of electrical and automation equipment*.

The compulsory modules of the competence area in pulping (Paper Process Operator) are *chemical pulping* and *manufacturing of groundwood pulp, refiner mechanical pulp and recycled fibre pulp*. 10 credits must be taken from the following optional modules: *processing of pulps and waters* (10 credits), *manufacturing of paper and cardboard* (10 credits), *finishing of paper and cardboard* (10 credits), *manufacturing of cartons* (5 credits), *manufacturing of corrugated board* (5 credits), *special coating and laminating* (5 credits).

The compulsory modules of the competence area in paper and cardboard manufacturing (Paper Process Operator) are *processing of pulps and waters*, *manufacturing of paper and cardboard* and *finishing of paper and cardboard*. 10 credits must be taken from the following optional modules: *chemical pulping* (15 credits), *manufacturing of groundwood pulp, refiner mechanical pulp and recycled fibre pulp* (15 credits), *manufacturing of cartons* (5 credits), *manufacturing of corrugated board* (5 credits), *special coating and laminating* (5 credits).

The compulsory modules of the competence area in paper conversion (Paper Converter) are *manufacturing of cartons*, *manufacturing of corrugated board* and *special coating and laminating*. 10 credits must be taken from the following optional modules: *chemical pulping* (15 credits), *manufacturing of groundwood pulp, refiner mechanical pulp and recycled fibre pulp* (15 credits), *processing of pulps and waters* (10 credits), *manufacturing of paper and cardboard* (10 credits), *finishing of paper and cardboard* (10 credits).

Candidates must be familiar with the operating environment, procedures and raw materials of the paper industry. They must be familiar with the occupational health and safety risks of their sector and proceed in their work according to laws and agreements. They must be able to name and define the main and support processes of the paper industry and the most common service processes and at least one sub-process of the main process and equipment in English. They must be able to interpret process flowcharts and be familiar with the most commonly used graphical symbols. They must be able to solve mathematical problems that emerge in connection with their assignments. They must command physical quantities, phenomena and laws and the basics of chemistry to the extent required by their work. They must understand the significance of mechanical maintenance and preventive servicing of paper industry processes and be able to perform routine servicing and maintenance tasks independently. They must be able to perform basic switchings and measurements in direct and alternating current circuits in

accordance with electrical safety regulations. They must be able to operate an automation system and be familiar with the principles of communication between process measuring and regulating systems. They must be familiar with the structures and operations of condition monitoring systems. They must be able to interpret various automation documents and be familiar with information system solutions related to maintenance management. They must be able to use word-processing and spreadsheet software and information networks in assignments related to their own occupation. They must be able to draw up a project plan and schedule and to plan their own use of time. They must be able to use interactive skills so as to render the work of a team more effective. In addition, they must command the skills and knowledge of their chosen modules.

Those who have completed the qualification possess basic skills for working in operation and maintenance management assignments within the paper industry.

Vocational Qualification in Plastics and Rubber Technology

The compulsory modules common to both competence areas of the qualification are *basic production skills* and *quality and environmental management*. The compulsory modules of the competence area in plastics technology (Plastics Mechanic) are *manufacturing of plastic products* and *machining and after-treatment of plastics*. The compulsory modules of the competence area in rubber technology (Rubber Mechanic) are *basic skills in rubber technology* and *manufacturing of rubber products*. In addition, one of the following optional modules must also be taken in both competence areas: *manufacturing of plastic products using injection-moulding technology*, *manufacturing of plastic composites using laminating technology*, *advanced skills in plastics production*, *advanced skills in rubber production*.

Candidates must be able to perform production servicing and maintenance tasks and manufacturing work in the plastics and rubber industries. They must be able to perform ordinary servicing and repair tasks on plastic and rubber production equipment. They must be able to test plastic and rubber products and raw materials, using the most common testing methods. They must be able to obtain information and draw up work reports using the latest information and communications technology.

Candidates who have chosen the competence area in plastics technology must be able to perform both manual-intensive and automated production assignments in the field. They must be capable of participating in product development work and command the manufacturing, finishing and repair assignments of plastic products. In their work, they must take account of the effects of manufacturing phases on plastic raw materials, the properties of the products, health and the environment.

Candidates who have chosen the competence area in rubber technology must be able to work in various production assignments in the rubber industry. They must be able to repair the most common malfunctions occurring in the manufacturing process. They must be familiar with the raw materials used in the manufacturing process, their properties and their behaviour in the process. They must be able to use rubber production machinery and perform its routine servicing operations.

Those who have completed the qualification possess basic skills for different assignments within the rubber or plastics industries.

Vocational Qualification in Surface Treatment Technology

The compulsory module common to all competence areas of the qualification is *general skills in surface treatment technology*.

The compulsory module of the competence area in painting (Painter) is *painting*. One of the following modules must also be taken: *renovation and restoration, exterior surface treatment, smoothing, product painting, decorative and faux painting, restoration of furniture, structural repairs*. In addition, candidates must take two unselected modules from the optional modules in painting.

The compulsory module of the competence area in painting (Floor Layer) is *floor and wall covering work*. One of the following modules must also be taken: *carpeting, parqueting, floor surface treatment, waterproofing and tiling*. In addition, candidates must take two unselected modules from the following optional modules in painting: *renovation and restoration, exterior surface treatment, smoothing, product painting, decorative and faux painting, restoration of furniture, structural repairs, carpeting, parqueting, floor surface treatment, waterproofing and tiling*.

In the competence area in industrial surface treatment (Surface Treatment Finisher) candidates must take one of modules *painting line operation, spray painting* and *metal coatings* and one of the modules *basics of anti-corrosive painting, basics of spray painting, repairs to and painting of plastic parts, powder coating* and *electrodeposition and chemical surface treatments*. In addition, candidates must take three unselected optional modules in industrial surface treatment (3 = equivalent to three modules).

The compulsory module of the competence area in industrial surface treatment (Corrosion Prevention Painter) is *anti-corrosive painting*. One of the following modules must also be taken: *anti-corrosive treatment, hot-dip galvanising, hot spraying, welding and basics of sheet metal work* and *rubberising, plasticising and tiling*. In addition, candidates must take three unselected modules from the following optional modules in industrial surface treatment (3 = equivalent to three modules): *painting line operation (3), spray painting (3), metal coatings (3), anti-corrosive painting (3), basics of anti-corrosive painting, basics of spray painting, repairs to and painting of plastic parts, powder coating, electrodeposition and chemical surface treatments, anti-corrosive treatment, hot-dip galvanising, hot spraying, welding and basics of sheet metal work* and *rubberising, plasticising and tiling*.

The compulsory module of the competence area in industrial wood surface treatment (Surface Treatment Finisher) is *product painting*. One or both of the following modules must also be taken: *surface treatment line operation, surface treatment of wood products*. Candidates who have only chosen one of the above-mentioned modules must also take three of the following modules: *veneering and film coating, repair of surface imperfections, basics of surface treatment line operation, repairs to wood products, decorative and faux painting, restoration of furniture, basics of spray painting, powder coating*.

Candidates must understand the functioning of the machinery and equipment used in the sector and be able to perform disassembly and assembly tasks related to their washing, cleaning and servicing operations and carry out operational servicing work on surface treatment equipment. They must be able to use the most common hand tools employed in repairs and servicing tasks. They must possess basic knowledge of all general surface treatment materials and of the physics and chemistry related to their protection and surface treatment methods. They must be able to use different surface treatment materials according to their purpose, instructions for use and industrial safety regulations.

Candidates must be able to perform small surface treatment tasks according to work specifications and drawings, visual assessments of treated surfaces and measurements related

to surface treatment and inspections of finished surfaces. They must be familiar with the elements of general occupational health and safety and with the main occupational safety regulations governing surface treatment.

Candidates must be qualified to obtain the official pass required to carry out hot work and possess first aid skills equivalent to first aid level 1. They must command the main measures involved in environmental protection and in waste management and treatment of hazardous waste in the surface treatment sector. They must act in accordance with quality systems and be able to draw up working plans and written reports on their work performance relating to quality systems. They must be able to make use of information technology in information acquisition, reporting and communication. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification possess good basic theoretical and practical skills for different surface treatment assignments in the construction, metal or wood industries, for example, and specialised competence in one sector of the qualification.

Vocational Qualification in Wood Processing

The compulsory modules common to all competence areas of the qualification are *basic wood processing skills* and *entrepreneurship in wood processing*. In addition, candidates must choose one competence area and associated modules. The modules of the competence area in wood-based panel technology (Panel Process Operator) are either *manufacturing of basic plywood, manufacturing of chipboards and other types of board* and *processing of panel products* or *marketing of wood products and production and machinery in the sawmill and wood-based panel industries*. Candidates who have chosen the competence area in joinery (Joiner) must take the *productive activities in joinery* module and one of the following modules: *furniture industry, joinery industry, tool maintenance* or *timber construction*. The modules of the competence area in the sawmill industry (Sawmill Process Operator) are either *sawing process management* and *process management in wood processing* or *marketing of wood products and production and machinery in the sawmill and wood-based panel industries*.

Candidates must be familiar with the most common types of wood, the most important physical and chemical properties of wood and with the significance of the structure of wood to woodworking. They must be able to determine the humidity of wood using a variety of methods and meters and understand the effect of humidity and drying on the structure, properties and behaviour of wood. They must be able to select adhesives suitable for each application and be familiar with gluing methods and equipment.

They must be able to operate basic machinery used in at least one area of the wood industry, plan and perform small servicing tasks on machinery and equipment and repair minor defects. They must be able to determine the condition of sharp tools, identify any faults, plan a work routine for tool maintenance and select servicing methods according to tool material and type. They must command the necessary measuring techniques and use of measuring devices.

They must be familiar with the basics of logic circuits and CNC programming. They must be able to perform tooling tasks and other working phases required by production on the basis of working diagrams and working phase plans. They must be able to draw up simple manufacturing plans, select raw materials and structural solutions and calculate quantities of materials.

Vocational Qualification in Upholstery

The common modules of the qualification are *upholstery design, padding, sewing, upholstery* and *entrepreneurship in upholstery*. In addition, one of the following competence areas must also be taken: *industrial upholstery, traditional upholstery* or *vehicle upholstery*. The qualification title is Upholsterer.

Candidates must possess an overview of the upholstery sector and they must recognise furniture from different style periods. They must be able to plan upholstery tasks independently and to select materials and methods suitable for the shapes and style of a product. They must be able to pad the most common upholstery products according to drawings, plans and instructions. They must be familiar with the tools, machinery and equipment used in padding work and be able to perform servicing and minor repairs on them. They must command the most common sewing tasks related to upholstering and be familiar with the sewing and other machinery, equipment and aids used in the work. They must be able to upholster the most common furniture and other similar industrially manufactured products according to instructions, plans and drawings.

Candidates must be able to use, service and repair upholstery tools, machinery and equipment. They must be familiar with the most common forms of enterprise in the upholstery sector and their differences and be able to make plans and calculations for setting up a business enterprise. They must understand the significance of customer service and marketing to the profitability of the enterprise and be familiar with external and internal marketing methods. In addition, they must command the skills and knowledge of their chosen competence area.

Those who have completed the qualification are equipped to work in assignments related to traditional furniture upholstery, vehicle and boat upholstery or upholstery of industrial furniture and other products.

Further Qualification in Chemical Engineering

The qualification comprises four compulsory modules and optional modules according to specialisation areas. In addition, it is also possible to take the *entrepreneurship* module. The compulsory modules are *process knowledge, business knowledge, safety and environmental management* and *maintenance management*. The three specialisation areas in the further qualification are *basic chemicals industry, chemical products industry* and *pharmaceuticals and bioindustry*.

- The compulsory modules of the basic chemicals industry area are *process control* and *preventive maintenance and condition monitoring*. In addition, one of the following modules must also be selected: *test run operations and product development, energy use, process equipment maintenance management, automation systems* or *occupational supervision*.
- The compulsory module of the chemical products industry area is *process control*. In addition, two of the following modules must also be selected: *energy and commodities, test run operations, logistics and product knowledge, quality control, environmental protection* or *occupational supervision*.
- The compulsory modules of the pharmaceuticals and bioindustry area are *best production practices* and *process control* or *pharmaceutical knowledge*. In addition, one of

the following modules must also be selected: *validation, test run operations, logistics and product knowledge, quality control, environmental protection or occupational supervision.*

Candidates must be familiar with a particular production plant process from raw materials to finished products, with customer requirements for quality and other product properties and with product acceptance and inspection procedures. They must be able to use the unit processes used in their operating area and the control and information systems required in their assignments. They must command the handling and properties of chemicals and supplies.

Candidates must be familiar with the most common causes of malfunctions in production processes and understand the principles and operations of the maintenance system. They must be able to perform condition monitoring tasks based on sensory evaluation and act appropriately in the event of malfunction. They must be familiar with the structures of automation systems and the locations of field equipment. They must understand the operating principles of measuring, regulating and control circuits and those of the most important field equipment. They must be capable of interpreting different diagrams used in the processing industry and of using control and automation systems.

Candidates must be able to provide instruction in assignments within their operating area and assess the level of vocational skills. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification may work in different skilled positions within the chemicals industry.

Further Qualification in Rubber Processing

The common modules of the qualification are *knowledge of business, customers and products, production management, maintenance management and risk management and raw materials and their uses.*

The Further Qualification in Rubber Processing includes the following eight competence areas: *manufacturing of tyres, manufacturing of rubber footwear, manufacturing of hoses and profiles, manufacturing of belts and mats, manufacturing of conveyor belts, manufacturing of moulded products, rubberising and mixing of compounds.*

The compulsory module in manufacturing of tyres is *tyre manufacturing process*. In addition, two of the following modules must also be taken: *mixing, component production, assembly, vulcanising, inspection and finishing.*

The compulsory module in manufacturing of rubber footwear is *footwear manufacturing process*. In addition, two of the following modules must also be chosen: *mixing and production of adhesives and lacquer, component production, line assembly, vulcanising, last removal, hand-lacquering and last storage management and inspection, finishing and packing.*

The compulsory module in manufacturing of hoses and profiles is *hose and profile manufacturing techniques*. In addition, one of the following modules must also be chosen: *mixing, component production, hose and profile manufacturing, finishing, inspection and packing, storage and dispatch.*

The compulsory module in manufacturing of belts and mats is *belt and mat manufacturing techniques*. In addition, two of the following modules must also be chosen: *component production, manufacturing of puller, sling and V-belts, manufacturing of mats, inspection and packing, storage and dispatch.*

The compulsory module in manufacturing of conveyor belts is *conveyor belt and rubber sheet manufacturing techniques*. In addition, two of the following modules must be chosen: *calendering and component production, building of conveyor belt bodies, vulcanisation of conveyor belts, inspection and repair of conveyor belts; storage, packing and dispatch and installation and maintenance of conveyor belts*.

The compulsory module in manufacturing of moulded products is *moulded product manufacturing techniques*. In addition, two of the following modules must also be chosen: *mixing component production, replacement of moulding tools, manufacturing of moulded products using injection moulding technique, manufacturing of moulded products using multi-daylight press technique, inspection and packing and storage and dispatch*.

The compulsory module of the competence area in rubberising is *rubberising technology*. In addition, one of the following modules must also be selected: *prefabrication; rubberising, roller covering; vulcanisation; roller machining, finish machining and packing travel work and polyurethane techniques*.

The compulsory module in mixing of compounds is *mixing technology*. In addition, two of the following modules must also be chosen: *pre-treatment of materials, mixing and post-treatment of compounds*.

All candidates are also free to select the *entrepreneurship* module.

Candidates must work in compliance with work instructions and quality systems. They must understand the significance of the subprocess as part of the production line and act accordingly. They must be familiar with the preceding and subsequent stages of the process. They must be able to perform their work assignments independently. They must communicate using field-specific terminology. They must be able to co-operate flexibly with co-workers and superiors in routine and malfunction situations. They must be familiar with occupational safety and comply with ergonomic working methods. They must be familiar with accident, fire and environmental risks at their own workplace. They must understand customer-specific quality requirements and act accordingly. They must understand their own opportunities to influence financial results and act accordingly.

Candidates must know how to use the business enterprise's communications and information systems. They must know how to interpret the production unit's production and financial reports and key financial ratios. They must be aware of the most common criteria for rejecting a rubber product.

Candidates must command skills and knowledge of their chosen module(s). They must command materials and know how to use machinery, equipment and information systems. They must be able to control the quality of work and recognise defects.

Those who have completed the qualification may work in skilled positions in the rubber industry.

Further Qualification in Corrosion Prevention Painting

The qualification requires acceptable completion of a total of four modules.

The common modules of the qualification are *general skills in corrosion prevention painting* and *corrosion prevention painting*. Two of the following optional modules must also be selected:

pretreatments; metal product painting; powder coating; dip painting; solvent-free coating; repairs of metal structures; repairs and surface treatments of plastic parts; thermal coating; rubberising, plastic coating and tiling; corrosion prevention treatments and cleaning and maintenance of surface treatment equipment. In addition, candidates may take the *entrepreneurship* module.

Candidates must possess the basic knowledge required in surface treatment occupations and be able to accomplish key corrosion prevention painting tasks based on instructions received from supervisory personnel, such as powder coating, wet painting and dip painting, including related pretreatment and finishing tasks, and blast cleaning of steel surfaces, airless spraying and coating tasks. They must be able to use different surface treatment agents and be familiar with the composition of these and with relevant safety regulations. They must possess basic knowledge of materials requiring surface treatment. They must know how to attend to the operating condition of machinery and equipment relating to the corrosion prevention field.

Candidates must be familiar with corrosion prevention standards and quality requirements within the field. They must know how to perform repairs and surface treatments of plastic parts, thermal coating tasks as well as rubberising, plastic coating and tiling on metal surfaces.

Candidates must be capable of using IT equipment and basic software and possess the language and communication skills required in the occupational field. They must be able to work in a safe, economical and quality-conscious manner.

Those who have completed the qualification may work in paintshops and in surface treatment departments at industrial plants in assignments requiring vocational skills in the field.

Further Qualification for Boat-builders

The requirements are identical to those of the equivalent qualification in Crafts and Design.

Further Qualification in Glass and Ceramics

The compulsory modules of the qualification are *knowledge of specific processes; business knowledge; knowledge of customers and products; risk management and maintenance management/operational maintenance.* The specialisation areas are flat glass, container and utility glass, fibreglass and glass wool as well as ceramics. Three of the following optional modules of the specialisation area in flat glass must also be taken: *glass melting; drawing and cooling processes; glass cutting; drilling and grinding; screen printing; bending; lamination; tempering; manufacturing of heatable glass; manufacturing of insulating glass; silvering; framing; repair and construction glazing; vehicle glazing; finishing and packing of flat glass.* Three of the following optional modules of the specialisation area in container and utility glass must also be taken: *batch preparation and melting; mechanical product manufacturing; grinding; painting; inspection and packing of glass.* Three of the following optional modules of the specialisation area in fibreglass and glass wool must also be taken: *melting; fiberisation; product manufacturing; application of coating; painting; manufacturing of glass fibre mats/felts; finishing and packing.* Four of the following optional modules of the specialisation area in ceramics must also be taken, one of which must be a shaping technique: *manufacturing of melted glass and glazing; manufacturing of moulds; shaping methods (forming, casting, pressing); glazing; production of transfers; decoration; baking; finishing, inspection and packing.* In addition to these, it is also possible to take the *entrepreneurship* module.

Candidates must be familiar with the functions of their business enterprise/factory and with the functions of the sub-processes of their unit/machine as well as with the main features of raw material properties and manufacturing of products. They must know how to use shared information systems at the business enterprise/factory. They must be aware of the organisation, ownership structure and competitors of the business enterprise. They must understand the most important key ratios as well as the principles of the management and quality systems and the environmental programme. They must be familiar with the most important customers, products, end applications of products and the requirements set for end use as well as with the main features of the product cost structure. They must command the approval and rejection criteria for products and their measuring techniques. They must be familiar with the terminology and operating methods used in maintenance, the maintenance system of the enterprise/factory as well as with the most common causes of malfunctions in processes. They must know how to perform condition monitoring tasks based on sensory evaluation and the most common troubleshooting measures in their area of assignments. They must understand the significance of the trouble-free operation of the enterprise/factory and must know how to act in the event of malfunction so as to minimise qualitative and quantitative losses. In addition, they must command the processes, materials, tools and working methods according to their specialisation area and their chosen optional modules.

Those who have completed the qualification may work in assignments of their chosen specialisation area.

Further Qualification in Industrial Surface Treatment

Those who have completed the qualification specialise in metal product painting, metallic surface treatments or surface treatments of wooden products. The qualification requires acceptable completion of a total of four modules.

The compulsory module common to all candidates is *general industrial surface treatment skills*.

In addition, depending on the specialisation area, at least one of the following modules must also be selected: *painting work in the metal industry, painting and lacquering in the wood industry, metallic surface treatments and operation of surface treatment lines*. Candidates may also select some of the following modules, as required: *pretreatments, powder coating, vehicle painting, plastic coating, special surface treatments, chemical and electrochemical surface treatments, thermal coating, decorative spraying, wood coating, repairs of wooden products and cleaning and maintenance of surface treatment equipment*.

In addition, it is possible to take the optional *entrepreneurship* module.

Candidates must be able to perform routine surface treatment work relating to the field according to work specifications and drawings. They must be aware of the quality requirements set for such work and know how to draw up clear reports of their work. They must possess basic knowledge of different surface materials and surface treatment agents and techniques used in their specialisation area. They must know how to use and service tools, machinery and equipment used in their work. They must be able to read technical drawings and calculate surface areas to be painted or coated. They must be familiar with common surface treatment markings.

Candidates must be able to carry out their work both independently and as members of teams. They must know how to work in a safe, economical, customer-focused and quality-conscious manner, taking environmental considerations into account.

Those who have completed the qualification may work in paintshops and in surface treatment and maintenance departments at industrial plants in assignments requiring vocational skills in the field.

Further Qualification in Joinery

The requirements of the competence-based qualification are identical to those of the equivalent qualification in Crafts and Design.

Further Qualification for Painters

The requirements of the competence-based qualification are identical to those of the equivalent qualification in Crafts and Design.

Further Qualification in Plastics Technology

The qualification comprises six compulsory modules and 14 optional modules, one of which must be selected. The compulsory modules are *knowledge of the plastics industry; knowledge of customers, products and end uses; knowledge of specific processes; business knowledge; risk management and maintenance management*. The optional modules are *injection moulding; extrusion/blown films; extrusion/sheets/flat films; extrusion/pipes/hoses; extrusion/profiles; blow moulding; thermoforming/vacuum forming; rotational casting; composite/reinforced plastic techniques; extrusion/coating; polyurethane techniques; post-processing techniques; regranulation/recycling and other manufacturing methods*.

Candidates must be familiar with nomenclature used in the field and the most common raw materials and their properties, additives, the most common manufacturing and testing methods as well as with plastics recycling methods. They must identify plastic materials and be able to interpret tabular data derived from plastics tests. They must be familiar with the most important customers of the factory, unit or machine and the end applications of products. They must be familiar with the requirements set for each product by the following processing phase, its end use and individual customers. They must be familiar with the main features of the product cost structure. They must be familiar with the sub-processes of their unit or machine and know how to use the control and information systems needed in their assignments.

Candidates must be familiar with the main features of the organisation of their business enterprise and understand the principles of its management systems. They must know how to interpret the financial and production reports and key ratios of the business enterprise. In their work, they must comply with the enterprise's safety, protection and work instructions and must know how to administer emergency first aid. They must be familiar with the operating methods used in maintenance operations and maintenance management and their effects on the profitability of the enterprise as well as with the most common causes of malfunctions in the process.

Candidates must know how to assess and anticipate the condition of the process on the basis of product quality parameters and perform condition monitoring tasks based on sensory evaluation within their assignment area. They must know how to use the maintenance information system of the enterprise, carry out troubleshooting tasks using a particular problem-solving

method and act appropriately in the event of malfunction. In addition, they must command the operations and techniques, machinery and equipment as well as raw materials and production process of their chosen manufacturing method.

Those who have completed the qualification may work in the manufacturing of plastic products made of plastic raw materials, semi-finished goods and additives.

Further Qualification in the Paper Industry

The compulsory modules of the qualification are *process knowledge, knowledge of customers, business and products, safety management and environmental protection*. Five of the following optional modules must also be taken, two of which require candidates simply to demonstrate their vocational skills at a conceptual level: *timber processing, chipping, refining, grinding, production of bleaching chemicals, production of by-products, cooking of chemical pulp, washing, screening and oxygen delignification of pulp, pulp bleaching, pulp drying, baling and storage, production of white liquor, evaporation plant functions, recovery of cooking chemicals, steam generation in a recovery boiler, treatment of pungent gases, manufacturing of recycled fibre pulp, pulp processing water systems, production of waters, waste water treatment, process washing, operations of the short circulation, wet-end chemicals, web formation, wet pressing, drying, calendering, surface sizing and coating, coating colour preparation, winding, slitting, sheeting, production planning, packing functions, storage and dispatch, raw materials control, pulping process control, paper/ cardboard manufacturing process control, conversion process control, product control, emissions control, paper or cardboard surface finishing, lamination, extrusion coating, printing surface preparation, printing, manufacturing of corrugated board, conversion of corrugated board, manufacturing of cartons or conversion of cardboard, manufacturing of cutting dies, manufacturing of paper or cardboard products, connection and replacement of electrical equipment, electrical drives, process automation, maintenance of field automation equipment, maintenance of automation systems, pneumatics maintenance, hydraulics maintenance, condition monitoring and measurements, maintenance information systems, maintenance of process equipment, lubrication maintenance, power transmission, pumping, welding, hauling, lifting and scaffolding work, steam and electrical systems, burning of solid fuel, materials management functions, workplace instruction, energy efficiency control, operational development.*

Candidates must be familiar with the processes of their mill and their own unit or machine and with the product manufacturing process. They must know how to use the control and information systems that they need. They must be familiar with the organisation of their group of companies and know how to interpret the mill's production and financial reports and key financial ratios.

Candidates must be familiar with the raw materials used, their properties and manufacturing in general terms. They must be familiar with the end applications of products and each customer's quality requirements for end products as well as with the product cost structure in general terms.

Candidates must be familiar with the safety, data security and environmental risks related to their work assignments and the mill as well as with safety and protection instructions, taking these into account in their work.

In addition, candidates must command the skills and knowledge of their chosen modules. According to the requirements of their chosen modules, they must be familiar with the types of wood used and with chemicals and their properties and applications, among other things. They must be familiar with the operating principles of the relevant processes, machinery and equipment. They must know how to assess and attend to the working condition of work equipment. They must be aware of product and corporate quality requirements.

Those who have completed the qualification may work in skilled positions within the paper industry.

Further Qualification in Wood-based Panel Technology

Candidates must choose either the plywood industry or the chipboard industry as their operating area.

The common modules in the plywood industry are *business and working life knowledge*, *knowledge of raw materials*, *process knowledge* and *economic knowledge*.

In addition, four modules must be selected from the following overall process areas: *veneer manufacturing* (log storage, steaming and feeding into mills; log measurement, debarking and cutting*; chipping; veneer turning*; veneer cutting; operation of veneer drying plants*; veneer drying and pre-sorting and tool maintenance in veneer manufacturing*), *veneer processing* (special sorting of dry veneer*, veneer scarfing*, cutting veneer into pieces, jointing of middle veneer*, joining of face veneer, veneer patching, glue making, plywood stacking* and transfer of veneer loads*), *plywood manufacturing* (pre-pressing and hot pressing of plywood*, edge sawing of plywood, grinding of plywood*, sorting and repair of plywood, packaging of plywood, transfer of plywood loads* and quality control*) and *processing of plywood* (dimension sawing of plywood*, coating plywood with films*, coating plywood with fluids, coating plywood with glued-on coatings*, machining plywood*, sorting of coated plywood, NC/CNC machining plywood*, edge painting of plywood, scarfing of plywood, packaging of processed products, tool maintenance in plywood processing*, storage and loading of plywood* and some other complete production engineering work assignment).

The common modules in the chipboard industry are *business and working life knowledge*, *knowledge of raw materials*, *process knowledge* and *economic knowledge*.

In addition, four modules must be selected from the following overall process areas: *chipping* (chipping and drying*), *chipboard manufacturing* (chipboard forming*), *chipboard finishing* (chipboard grinding and sorting, packaging and storage of ground chipboards, control of the chipboard process*, chipboard strength testing and quality control*), *chipboard processing* (chipboard coating*, chipboard priming, dimension sawing of chipboards*, packaging of dimension chipboards, edge listing of chipboards, transfer and loading of chipboard loads*, tonguing and grooving, maintenance management*, some other complete production engineering work assignment).

At least one of the optional modules of the qualification must be of a more demanding level (as indicated by an asterisk *).

Candidates must be able to use a variety of machine tools independently, taking account of the correct, efficient, economical and safe use of materials, machinery and equipment. They must command the settings and adjustments of machinery and equipment and be able to pinpoint malfunctions in them. They must have an overview of the operations of a mill as a technical and economic unit and be aware of the factors influencing the profitability of a business enterprise.

They must be familiar with their own mill's quality system and with the principles of their

own team's production planning. They must understand the effects of the raw material, its treatment and production techniques on the end product, quality and costs.

Those who have completed the qualification may work in skilled positions within the plywood and chipboard industries.

Further Qualification in the Sawmill Industry

The qualification comprises two common modules: *process knowledge* and *development of production technology or operations*.

In addition, candidates must choose four advanced modules from the 49 modules included in the following sub-processes: processing of logs and production of sawn timber, drying and post-treatment of sawn timber, blade maintenance, processing of sawn timber, further processing of sawn timber and other optional modules. The advanced modules are indicated by an asterisk (*). The optional modules must be selected from at least two different sub-processes.

The processing of logs and production of sawn timber sub-process includes the following optional modules: *receipt of logs* (*), *timber measurement at the mill* (*), *debarking of logs* (*), *selection of sawing settings*, *sawing* (*), *edging* (-/*), *dimension grading/pre-grading* (-/*) and *manufacturing of by-products*. The drying and post-treatment of sawn timber sub-process includes the following optional modules: *sticking* (*), *drying plant operation and control* (continuous, compartment or 2-stage kilns) (*), *beating plant operation and control* (*), *butt trimming*, *quality grading* (*), *length sorting*, *packaging*, *storage and dispatch* (*) and *dispatch recording* (*). The blade maintenance sub-process includes the following modules: *setting* (*), *band saw blade attachment*, *straightening and tensioning of blades* (band, circular or frame saw blades) (*), *preparation of blade controls*, *blade tipping*, *sharpening* (sawing, chipping or milling blades) (*), *blade design* (*), *manufacturing of forming tools* (*) and *blade maintenance machinery and equipment* (*). The processing of sawn timber sub-process includes the following modules: *splitting*, *planing* (*), *sorting of planed timber* (*), *scarfing of sawn timber* (*), *strength grading* (*), *manufacturing of roof trusses* (*), *impregnation* (*) and *actual cost calculation*. The further processing of sawn timber sub-process includes the following modules: *manufacturing of prefabricated unit parts* (frames, special prefabricated units, cladding, etc.) (*), *manufacturing of precut frame parts* (*), *manufacturing of glued columns and beams*, *manufacturing of planed logs and frameworks*, *manufacturing of glued laminated boards* and *manufacturing of blanks and part components*. The other optional modules include: *material transfers* (using fork-lift trucks, wheeled loaders, etc.) (*), *making settings* (for saws, chippers, planing machines, etc.) (*), *maintenance management* (*), *some other complete production engineering work assignment* and *development of production technology or operations* (*).

Candidates must command preliminary planning and concepts used in the field and understand the significance of the work as a whole. They must be capable of analysing working practices and methods and of developing their work. They must be capable of work assessment and follow-up inspections. They must possess good capabilities to handle technical or functional problems related to machinery and equipment and preliminary and operational maintenance. They must be able to perform demanding special assignments, such as machinery alignments, measurements, inspections and installations, using appropriate equipment. They must be capable

of working independently or as members of groups. Candidates must be aware of the working phases of overall work processes and the properties of machinery and equipment and know how to use these. They must command vocational skills equivalent to those required in the Further Qualification in the Sawmill Industry.

Candidates must command the working phases and special issues of their chosen sub-process.

Those who have completed the qualification may work within the sawmill industry in various process assignments requiring a high standard of vocational skills.

Specialist Qualification for Boat-builders

The requirements of the competence-based qualification are identical to those of the equivalent qualification in Crafts and Design.

Specialist Qualification in Chemical Engineering

The qualification consists of the following compulsory modules: *process knowledge, business knowledge, safety and environmental management, maintenance management, process control and working community development.*

Two of the following modules must also be selected: *product and production technology development, logistics and production planning, development of safety and environmental protection, staff and operational development and supervisory work.* In addition, it is also possible to take the *entrepreneurship* module.

Candidates must be able to operate the unit processes used in their operating area and the control systems required in their assignments. They must know how to take representative samples from production and act in accordance with the results of analyses. They must be capable of operating in planned process changes and shutdown and start-up situations, while also being able to control operations in malfunctions and emergency situations.

Candidates must know how to use the control and information systems needed in their assignments. They must be able to present the operations of the production plant and comply with the business enterprise's procedures governing complaints. They must know how to function in their working area in compliance with the regulations of their business enterprise's environmental system. They must be familiar with the chemicals and other supplies in their working area and know how to handle these and their Material Safety Data Sheets. They must take safety and environmental risks and the legislation, licence conditions and regulations governing their field into account in their work and comply with the business enterprise's environmental objectives. They must comply with the safety-related work permit procedures of the business enterprise. They must be able to control the enterprise's waste separation and reuse. When necessary, they must be able to control operations in accordance with the enterprise's safety and protection plans.

Candidates must be able to monitor the condition of their working area through sensory evaluation, take appropriate action in normal and malfunction situations and co-operate with maintenance staff. They must know how to create conditions that allow equipment to be repaired or serviced safely and appropriately. They must keep their equipment and working environment tidy.

Candidates must be able to interpret drawings used in the process industry. They must be able to operate the control and automation systems used in their working area and make use of the information that they provide. They must know how to use electrical equipment safely and to operate and adjust production equipment used in their working area in co-operation with other working areas. They must be able to work both independently and as members of groups. They must be capable of using the business enterprise's problem-solving procedures and develop their own vocational skills and those of their working community.

In addition, those who have completed the qualification command the vocational skills required in their chosen optional modules of the qualification.

Those taking the entrepreneurship module must possess the skills and knowledge required for business activities.

Those who have completed the qualification may work in positions demanding very good vocational skills, as production experts or supervisors within the chemical industry.

Specialist Qualification in the Paper Industry

The compulsory part of the qualification is *vocational skills requirements of the Further Qualification in the Paper Industry*. In addition, six of the following modules must also be taken, at least one of which must be marked with SQ (Specialist Qualification): *timber processing; chipping; refining; grinding production of bleaching chemicals; production of by-products; cooking of chemical pulp; washing, screening and oxygen delignification of pulp; pulp bleaching; pulp drying; baling and storage; production of white liquor; evaporation plant functions; recovery of cooking chemicals; steam generation in a recovery boiler; treatment of pungent gases; manufacturing of recycled fibre pulp; pulp processing; water systems; production of waters; waste water treatment; process washing; operations of the short circulation; wet-end chemicals; web formation; wet pressing; drying; calendering; surface sizing and coating; coating colour preparation; winding; slitting; sheeting production planning; packing functions; storage and dispatch; raw materials control; pulping process control; paper/cardboard manufacturing process control; conversion process control; product control; emissions control; paper or cardboard surface finishing; lamination; extrusion coating; printing surface preparation; printing manufacturing of corrugated board; conversion of corrugated board; manufacturing of cartons or conversion of cardboard; manufacturing of cutting dies; manufacturing of paper or cardboard products; connection and replacement of electrical equipment; electrical drives; maintenance of field automation equipment; maintenance of automation systems; pneumatics maintenance; hydraulics maintenance; condition monitoring and measurements; maintenance information systems; maintenance of process equipment; lubrication maintenance; power transmission; pumping; welding; hauling, lifting and scaffolding work; steam and electrical systems; burning of solid fuel; materials management functions; workplace instruction; energy efficiency control; operational development, SQ 77 process and operational development, SQ 78 development of vocational competence; SQ 79 business economics; SQ 80 management of teams and operations; SQ 81 command of employment affairs.*

Candidates must be familiar with the processes of their mill and their own unit or machine and with the product manufacturing process. They must know how to use the control and information systems that they need. They must be familiar with the organisation of their group of companies and know how to interpret the mill's production and financial reports and key financial ratios.

Candidates must be familiar with the raw materials used, their properties and manufacturing in general terms. They must be familiar with the end applications of products and each customer's quality requirements for end products as well as with the product cost structure in general terms.

Candidates must be familiar with the safety, data security and environmental risks related to their work assignments and the mill as well as with safety and protection instructions, taking these into account in their work.

In addition, candidates must command the skills and knowledge of their chosen modules. According to the requirements of their chosen modules, they must be familiar with the types of wood and chemicals used, their properties and applications, among other things. They must be familiar with the operating principles of the relevant processes, machinery and equipment. They must know how to assess and attend to the working condition of work equipment. They must be aware of product and corporate quality requirements.

Candidates must, among other things, know how to apply problem-solving, analysis and brainstorming techniques in development work. They must be able to function as project team members or leaders. They must be able to assess the complexity of work assignments and individual people's competence in relation to this. They must know how to interpret key indicators and produce financial estimates and calculations. They must know how to manage teams and operations and to develop and train the working community. They must be able to encourage and listen to people and to comply with statutes governing the world of work.

Those who have completed the qualification may work in paper industry assignments requiring extensive vocational skills.

Specialist Qualification for Painters

The requirements of the competence-based qualification are identical to those of the equivalent qualification in Crafts and Design.

Specialist Qualification in Plastics Technology

The common modules of the qualification are *plastic materials technology, process management and organisation of work* and *profitability and cost management*. One of the following modules must also be chosen: *injection moulding technology, injection moulding production control, extrusion technology, extrusion production control, reinforced plastic and other composite technology, reinforced plastics and other composite production control, other plastics production technologies* and *other plastics production control*. In addition, it is also possible to select the *entrepreneurship* module.

Candidates must be aware of the properties of plastics and their effects on processability. They must be able to compare plastic raw materials, test these and analyse the results. They must be able to select raw materials for the product on the basis of the results and information obtained.

Candidates must understand the principles of project and supervisory work. They must understand production and process management in general terms. They must know how to report on a project, organise production and develop the process. They must know how to produce profitability and cost estimates and develop their own actions.

Candidates must command the skills and knowledge of their chosen modules. They must understand the requirements of high-quality work, being capable of preventing and solving problem situations. They must be able to co-operate with other competent people operating in the field. They must know how to use and adjust work equipment and machinery.

In injection moulding technology, extrusion technology, reinforced plastic and other composite

technology as well as other plastics production technologies, candidates must, among other things, know how to plan test runs, using systematic workflow control methods. They must know how to verify the tested products and develop a production programme that takes the special requirements of production into account in terms of automation, auxiliary equipment and any possible post-processing phases. They must know how to use and modify automation application programs.

In control of injection moulding production, extrusion production and other composite production, candidates must know how to determine product quality and command quality documentation. They must know how to operate equipment used to control production planning and control production. They must know how to manage process productivity, quality control and material flows. They must command quality documentation and know how to improve uniform quality and to control production in statistical and functional terms. They must know how to develop product automation and take automation applications into account in production control. They must be able to plan, organise and supervise team operations and also supervise the operations of their working community.

Those who have completed the qualification may work for the plastics industry in demanding production assignments.

Specialist Qualification for Panel Process Operators

Candidates must choose either the plywood industry or the chipboard industry as their operating area.

In the plywood industry, the qualification comprises the following common modules: *the plywood industry* and *development of production technology and operations*.

There are four optional modules, which must be chosen from at least two different overall process areas. The overall process areas are *veneer manufacturing*, *veneer processing*, *plywood manufacturing* and *processing of plywood*. The modules in veneer manufacturing are *log measurement, debarking and cutting*; *veneer turning*; *operation of veneer drying plants* and *tool maintenance in veneer manufacturing*. The modules in veneer processing are *special sorting of dry veneer*, *veneer scarfing*, *jointing of middle veneer*, *plywood stacking* and *transfer of veneer loads*. The modules in plywood manufacturing are *pre-pressing and hot pressing of plywood*, *grinding of plywood*, *transfer of plywood loads* and *quality control*. The modules in processing of plywood are *dimension sawing of plywood*, *coating plywood with films*, *coating plywood with glued-on coatings*, *machining plywood*, *NC/CNC machining plywood*, *tool maintenance in plywood processing* and *storage and loading of plywood*.

In the chipboard industry, the qualification comprises the following common modules: *the chipboard industry* and *development of production technology and operations*.

Four optional modules must be selected from the following overall process areas: *chipping*, *chipboard manufacturing*, *chipboard finishing* and *chipboard processing*. The module in chipping is *chipping and drying*. The module in chipboard manufacturing is *chipboard forming*. The modules in chipboard finishing are *control of the chipboard process* and *quality control*. The modules in chipboard processing are *chipboard coating*, *dimension sawing of chipboards*, *transfer and loading of chipboard loads* and *maintenance management*.

Candidates must know the properties of the raw materials and supplies used in the field and the applicability of these during different working phases and the significance of different working phases to the process as a whole. They must understand the effects of the growth process of a tree on the structure and faults of wood. They must know the macrostructure of wood and its chemical and physical properties and the effects of these on the applicability of wood.

Candidates must know the phases of the manufacturing process in the plywood or chipboard industry, the operating principles of the machine lines and machinery used and the effects of these on the product. They must be aware of the technical and commercial quality requirements of plywood or chipboard in different working phases. They must know the most important applications of the end products manufactured in their field.

Candidates must be aware of general plant maintenance and quality control. They must be familiar with the principles of fault monitoring systems and data processing, and know how to use related information systems. They must also know the general principles of occupational health and safety, fire safety and environmental protection and any special features that are relevant to their own work.

Candidates must be familiar with the operating system in the factory and understand its significance to their own work. They must be familiar with the main characteristics of their employer enterprise and its organisation and with the capacity of and products made at their own plant. They must know the plant's most important customers, customer products and export countries and the requirements set by these on their own operations. They must understand the provisions of labour legislation and the relevant collective agreement and their own place as members of their working community.

Candidates must be aware of different forms of enterprise and the basic prerequisites for business activities. They must be aware of the significance of productivity both to the business as a whole and in terms of their own work. They must be able to analyse working methods and practices and develop their own work and, where necessary, production activities as a whole. They must be aware of the factors influencing the profit formation of a plywood or chipboard mill and their weight and the effects of different measures on financial results. They must command the basics of business economics at a general level.

Candidates must be aware of the most important development areas in the process or a production phase and the principles of project work and teamwork. They must know the principles of workplace instruction and production control and know how to transfer their own vocational skills to other employees through workplace instruction.

Those who have completed the qualification may work in responsible, skilled positions and in supervisory and workplace instruction assignments within the plywood and chipboard industries.

Specialist Qualification in Joinery

The requirements of the competence-based qualification are identical to those of the equivalent qualification in Crafts and Design.

Specialist Qualification for Sawmill Process Operators

Candidates must demonstrate their vocational skills in a minimum of two sawmill sub-processes,

from which they must select at least six functional areas in all. The sub-processes and their functional areas are *processing of logs and production of sawn timber* (receipt of logs, sorting of logs, debarking of logs, selection of sawing settings, sawing, edging, dimension sorting, manufacturing of by-products), *drying and post-treatment of sawn timber* (drying pile making, drying plant management and control, quality grading and trimming, length packaging and storage, dispatch operations), *blade maintenance* (setting, maintenance of the blades of frame, circular and band saws and other sharp tools, blade maintenance machinery and equipment) and *further processing of sawn timber* (splitting and planing, scarfing and strength grading of sawn timber, manufacture of roof trusses, impregnation).

Candidates must command the preliminary planning and concepts relating to the work, understand the significance of the work as a whole and be able to accomplish their tasks independently or as key members of working groups. They must be able to analyse approaches and methods. They must be capable of work assessment and follow-up inspections. They must understand the operating principles of machinery and equipment, be able to perform tasks related to preventive and operational servicing and maintenance and advanced special assignments, such as machinery alignments, measurements, inspections and installations. They must be familiar with the working phases of overall functions and be acquainted with the sawmill that is their place of work as a production, technical and financial unit.

Those who have completed the qualification may work within the sawmill industry in various process assignments requiring a high standard of vocational skills.

Specialist Qualification in Surface Treatment

The modules of the qualification are *general skills in specialist surface treatment, organisation and supervision of work* and *profitability and cost management in the surface treatment field*. One of the following modules must also be selected: *metallic surface treatments, anti-corrosive painting, painting and lacquering work in the wood industry, painting work in the metal industry* and *operation of surface treatment lines*. In addition, one of the following modules must also be taken: *corrosion prevention techniques, surface treatment techniques for wooden products, wood coating techniques, surface treatment techniques in the metal industry* and *operational planning*.

It is also possible to take the optional *entrepreneurship* module.

The qualification requires acceptable completion of a total of five modules.

Candidates must be able to independently perform and supervise routine surface treatment work related to the field. According to their specialisation area, they must command wood or metal surface treatment and painting techniques and know how to perform corrosion prevention or vehicle painting work. They must be capable of work planning and of calculating contracts and tenders. They must possess the communication and language skills required in their work and have sufficient knowledge of business operations.

Those who have completed the qualification may work in positions demanding particularly good skills, as supervisors at the paintshops of painting companies and production plants, as quality controllers and in training and advisory assignments in the field.

TEXTILES AND CLOTHING TECHNOLOGY

VOCATIONAL QUALIFICATIONS

- Vocational Qualification in Clothing
- Vocational Qualification in Shoemaking
- Vocational Qualification in Textiles

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification in Clothing
- Further Qualification in Bags and Leather Goods Production
- Further Qualification in Fur-dressing
- Further Qualification in Leather-dressing
- Further Qualification in Shoemaking
- Further Qualification in Textiles

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification in Bags and Leather Goods Production
- Specialist Qualification in Clothing
- Specialist Qualification in Fur-dressing
- Specialist Qualification in Leather-dressing
- Specialist Qualification in Shoemaking
- Specialist Qualification in Textiles

Vocational Qualification in Clothing

The compulsory module common to all competence areas of the qualification is *basic skills in the clothing field*.

The compulsory modules of the competence area in accessories production (Milliner) are *working with fabrics, working with felt, leather work, fur-working, working with special materials and preparation of trimmings*.

The compulsory modules of the competence area in dressmaking (Dressmaker) are *knowledge of materials, product design, pattern-making and cutting, shaping and fitting and dressmaking*.

The compulsory modules of the competence area in fur-dressing (Furrier) are *knowledge of fur-dressing materials, fur product design, pattern-making and shaping of fur products, treatment of fur materials and preparation of fur products*.

The compulsory modules of the competence area in tailoring (Tailor) are *knowledge of materials, product design, pattern-making and shaping and tailoring*.

At least two of the following optional modules must also be taken in all competence areas: *design and preparation of historical headgear, preparation of festive accessories, preparation of felted accessories, interior design, refashioning, preparation of party and evening wear, preparation of outer clothing, preparation of leather and sheepskin products, preparation of multi-material products, preparation of men's made-to-measure suits, occupation-specific information technology, entrepreneurship in the clothing business*.

Candidates must be familiar with the history of the Finnish clothing sector, its products, places of work and assignments and with its forms of enterprise and interest groups. They must be aware of the most important materials used in the manufacturing of the products and their care instructions.

Candidates must be able to select sewing threads, materials, backing fabrics and additional materials suitable for each job. They must be familiar with styles and prevailing trends and be able to design products taking account of quality, effectiveness and costs. They must be able to express their plans visually, including the details. They must possess basic pattern-making and cutting skills and they must be able to use and service single-cutting implements. They must be able to adjust a sewing machine to each material and product, select an appropriate needle and use the most common auxiliary devices of a sewing machine. They must be able to make individual products that meet the quality objectives according to a working method plan and to finish them so that they are fit for delivery.

Candidates must be able to use computers and peripherals to acquire, produce and communicate information and be familiar with the use of information technology applications in the clothing sector. They must serve, advise and guide customers with an easy manner and must also be capable of expressing themselves in writing.

Those who have completed the qualification possess extensive skills for work assignments in the clothing sector as well as specialised competence in accordance with their chosen modules.

Vocational Qualification in Shoemaking

The compulsory modules of the qualification common to both competence areas are *basic skills in shoemaking and leather-dressing, knowledge of materials and manufacturing*. The compulsory modules for industrial manufacturing in shoemaking and leather-dressing are *product design, cutting, stitching work and lasting and finishing work*. The compulsory modules for footwear repairs are *customer service, footwear repairs and entrepreneurship at a shoemaker's shop*. The qualification title in both competence areas is Shoemaker.

Candidates must be familiar with the history, development and current state of the manufacture of footwear and leather products. They must be familiar with the anatomy of the foot, foot diseases and with foot measuring methods. They must be familiar with the materials, structure, use and manufacture of lasts and with the structures and working methods of footwear and leather products. They must understand the significance of components to footwear and leather products.

Candidates must command the properties, economical and appropriate use, and storage methods of the most common materials and equipment in the shoe and leather sector. They must be able to use the most common machinery and equipment in the footwear sector in accordance with occupational safety requirements and to perform their routine servicing tasks.

Candidates must be familiar with the methods of manufacturing and repairing various types of footwear and leather products and with the basics of computer-aided pattern design and grading. They must command the production process as a whole and understand the principles of teamwork. They must be familiar with the basics of pricing, marketing and entrepreneurship and understand the significance of customer service. They must be capable of utilising computer software and the Internet in their work. In addition, they must command the skills and knowledge of their chosen modules.

Those who have completed the qualification possess extensive skills for different work assignments in the footwear sector as well as specialised competence in accordance with their chosen modules.

Vocational Qualification in Textiles

The compulsory modules of the qualification are *knowledge of materials, knowledge of machinery and equipment, manufacturing and entrepreneurship in the textiles industry*. Depending on their scopes, 2–3 of the following optional modules must also be taken: *weaving, knitting, thread manufacturing, pinning, manufacturing of non-woven fabrics and dyeing, finishing and printing*. The qualification title is Textiles Maker.

Candidates must be familiar with textile materials, the characteristics of their use and with care label symbols as well as with the thread manufacturing processes and symbols. They must be familiar with the most common machinery and equipment used in preliminary weaving tasks, manufacturing of textiles, dyeing and finishing and with their operating principles. They must be familiar with the basics of electrical engineering, hydraulics and pneumatics and be able to read technical drawings and installation and safety instructions.

Candidates must command the main features of woven and knitted flat structures and the manufacturing methods of non-woven fabrics as well as of the labelling methods of textures and knitted fabrics. They must be aware of the principles of weaving, knitting, dyeing, printing and finishing. They must be familiar with the main features of the quality system, the concept of 'standard' and the ISO 9000 quality standard. They must understand the concepts of 'operating idea', 'business concept', 'strategy', 'operating plan', 'budget', 'viability', 'liquidity' and 'solvency'. They must be familiar with the main agreements and statutes regulating the activities of working communities. They must be equipped to use information and communications technology to acquire and communicate information. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification are broadly equipped to work in a variety of jobs in the textiles industry and possess the specific expertise according to their chosen modules.

Further Qualification in Bags and Leather Goods Production

The modules of the qualification are *knowledge of materials, cutting, bench work, sewing, finishing, occupation-specific information technology and entrepreneurship*.

Candidates must be able to produce aesthetic and functional bags and leather goods. They must be familiar with types of leather, backing fabrics, additional supplies and sewing threads and they must know how to select appropriate materials for different products.

Candidates must command different cutting techniques, know how to assemble a product by sewing and be capable of planning and performing different working phases safely and economically. They must be able to perform the necessary adjustments and daily maintenance on the machinery that they use. They must command key areas of bench work: skiving, edge painting, printing, glueing and metal fitting. They must know how to finish a product and to pack it ready for sale. They must be able to use information technology to acquire, process and produce information and for communication. They must understand the principles of business ideas, profitable operations and cost accounting and they must know how to draw up business development plans and budgets.

Those who have completed the qualification may work as employees in enterprises manufacturing bags and leather goods or as members of networks.

Further Qualification in Clothing

The common module of the qualification is *common vocational skills in clothing*. Depending on the specialisation, one of the following modules must be chosen: *compulsory module for pattern-makers*, *compulsory module for mechanics*, *compulsory module for milliners*, *compulsory module for knitters*, *compulsory module for dressmakers* and *compulsory module for tailors*.

In addition, at least one of the following modules must also be selected: *special techniques in clothing*, *special materials in clothing*, *manufacturing of special products*, *shape management*, *dressing for occasions and dress codes*, *heat and infrared sealing technologies in the clothing sector* and *electronics in the clothing sector*. In addition, all candidates are free to choose the *entrepreneurship* module.

Candidates must be familiar with the significance of work and production planning to product manufacturing in the clothing sector. They must be able to work economically and efficiently. They must be capable of presenting their work visually and verbally. They must be aware of the significance of ergonomics and safety. They must be capable of identifying the most important and commonly used materials and comparing these, making appropriate choices. They must be familiar with machinery in the clothing sector and its uses. They must be able to interact with customers and different stakeholder groups. They must know how to communicate understandably using the jargon of their field and to acquire information that they need.

Candidates must be able to comply with labour legislation and be familiar with copyright and consumer protection laws and regulations. They must command techniques, use of machinery and design within their specialisation area.

Candidates taking the compulsory module for pattern-makers must know how to make and adapt patterns for garments for different purposes. They must take each product's design, material and intended use into account when making patterns.

Those taking the compulsory module for mechanics must know how to assemble, install, repair, service and adjust the most common machinery and equipment used in the field and interpret manuals and drawings. They must know how to select and adjust machinery and equipment according to each specific application.

Those taking the compulsory module for milliners must know how to design, make patterns for and prepare accessories and trimmings for various outfits, occasions and events. They must know how to diversely utilise different materials, surface treatments and shapes in their work.

Those taking the compulsory module for knitters must know how to design and make patterns for knitted products, develop different product elements and make knitted products using flat knitting machines. They must be familiar with the differences between the manufacturing processes of fully fashioned and cut products and must specialise in one of these.

Those taking the compulsory module for dressmakers must know how to design and make various sewn products. They must know how to make and adapt patterns for and sew high-quality garments for different customers and purposes.

Those taking the compulsory module for tailors must know how to design and make effective, fitting and appropriate garments using tailoring techniques. They must know how to make and adapt patterns for and sew garments to order for different purposes, such as men's suits and ladies' skirt suits, which conform to quality requirements.

In terms of optional modules, candidates must command the special techniques, materials, products, situations, equipment and tasks of their chosen module and the skills and knowledge required.

Those who have completed the qualification may work in various assignments in the clothing industry or as entrepreneurs.

Further Qualification in Fur-dressing

The compulsory modules of the qualification are *knowledge of materials, design of fur products, pattern-making and shaping of fur products* and *preparation of fur products*. In addition, at least one of the following modules must also be selected: *refashioning, preparation of suede fur products, preparation of leather articles, preparation of multi-material products, fur accessories and trimmings, entrepreneurship or occupation-specific information technology*.

Candidates must possess capabilities required for handling fur materials and for preparing fur products. They must be familiar with fur materials used for manufacturing items of clothing and with their properties and they must know how to select the materials most suitable for each particular product. They must be familiar with dressing and finishing processes and production chains and purchasing processes in the fur business. They must follow international developments in the field and the effects of fashions.

Candidates must understand the opportunities of product design and know the effects of different solutions on the production time and price of products. They must be able to make use of the properties of fur materials and design effective fur garments for different customers. They must be capable of serving customers in a suitable manner, taking their wishes into account. They must be able to interpret different designs, take measurements, adapt basic patterns to make products according to designs and to make patterns. They must know how to make a product, select appropriate cutting techniques, to nail a blank and to assemble, line and finish the product.

In addition, candidates must command the skills of their chosen specialist area, such as design and implementation of suede fur, leather or multi-material products.

Those who have completed the qualification may work in furrier businesses in different production assignments.

Further Qualification in Leather-dressing

The common module of the qualification is *basics of leather-dressing*. Two of the following four modules must also be taken: *wet processes in leather-dressing, machine working phases of wet processes in leather-dressing, finishing processes in leather-dressing, machine working phases and mechanical working phases of finishing processes in leather-dressing*.

Candidates must be able to identify different types and grades of leather and be familiar with the classifications, characteristics, applications and storage methods of leathers and be able to identify treatment and hide defects. They must know how to use and service the machinery and equipment of their occupational field and to adjust them according to the products being manufactured. They must be familiar with the effects of the materials used on the end results and know how to fill in a monitoring card. They must know the leather-dressing phases during which different types of waste are generated and the quantities of waste generated as well as with the useful applications for such waste.

They must be familiar with the operational safety regulations of materials and equipment and

with waste management regulations in the leather industry. They must take quality, economy and productivity into account in their work. They must be conscious of their own contribution to other working phases and to the end product and be capable of co-operation. They must also be able to present the particulars of their own occupational field clearly in their mother tongue in writing. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification may work in different working phases of leather-dressing.

Further Qualification in Shoemaking

Candidates must select one of the following specialisation areas: footwear repairs (advanced cobbler), industrial footwear manufacturing (advanced shoemaker) or craft footwear manufacturing (advanced shoemaker).

The qualification requires completion of four of the following modules: *product design, cutting, production of and repairs to shoe uppers, lasting or dressing of shoe uppers, soling and heeling finishing, component production, maintenance, auxiliary tool production, production planning, materials management functions, customer service, entrepreneurship* and *special assignments*. The special assignments module may cover almost any special piece of work within the shoemaking field.

Candidates must be familiar with the history of footwear manufacture and master footwear production methods. They must be familiar with materials used in footwear manufacturing and command different sizing systems. They must be familiar with the basics of foot anatomy and be aware of the effects of footwear on how the foot works. They must command common footwear maintenance and repair measures.

Depending on their chosen specialisation area, candidates must command the most common methods and working phases used for footwear and other leather products. They must command the basics of pattern-making and footwear sizing, making use of this knowledge in repairs or manufacturing. They must be able to draw up work plans and explain these to their customers. They must be able to choose, treat and work the materials they use. They must aim to create high-quality work.

They must be familiar with materials, tools and equipment used in different functions. They must attend to machinery and tools and the order of their working environment. They must know how to plan use of their time and to price their work appropriately. In addition, they must command the skills and knowledge of their chosen qualification modules.

Depending on their chosen specialisation, those who have completed the qualification can work in footwear repairs, industrial footwear manufacturing or craft footwear manufacturing.

Further Qualification in Textiles

The common modules of the qualification are *common vocational skills in textiles* and *production economics and entrepreneurship in the textiles sector*. In addition, candidates specialising in textiles in crafts and design must also select two of the following modules: *weaving, dyeing, textile printing, felting, special textile techniques, textile preservation, manufacturing of soft furnishings* and *additional and finishing textile techniques*. Those specialising in industrial textiles must also select three of the following

qualification modules: *manufacturing of yarns or non-woven fabrics, industrial weaving, industrial knitting, further processing of textiles, testing of textiles, basic maintenance skills, maintenance of machinery related to manufacturing of yarns and non-woven fabrics, maintenance of weaving mill machinery, maintenance of knitting mill machinery, maintenance of machinery related to further processing of textiles and occupational information technology*. In addition, all candidates may also select the *entrepreneurship* module.

Candidates must be familiar with textile structures and materials. They must command the process of manufacturing textile products. They must be familiar with the requirements of ergonomics and occupational safety.

Candidates must be familiar with the textiles industry as a sector. They must be able to consider the opportunities and risks involved in starting up and developing a textiles business. They must understand the significance of quality in terms of overall operations.

Depending on their chosen qualification modules, candidates must be familiar with techniques used in those areas, applying these in their work. They must know how to plan manufacturing and interpret designs and instructions. They must be able to choose the correct materials, command production and know how to finish products. They must know preservation techniques and know how to plan and carry out textile preservation. They must command substances, materials, working methods and the use and maintenance of machinery and equipment as required in each specific qualification module.

Textiles craftspeople have the opportunity either to work as part of textiles teams within large-scale production in spinning mills, weaving mills, needling departments, non-woven fabric mills, knitting mills, textile printing mills, dye houses, finishing departments, or in a variety of different sectors and occupations within crafts and design or as entrepreneurs. They may operate as contract manufacturers for a larger textiles company or function as clients subcontracting their own products to different businesses, or make textiles as a sideline.

Specialist Qualification in Bags and Leather Goods Production

The compulsory modules of the qualification are *knowledge of materials, product design, pattern-making, cutting, bench work, sewing and finishing*. In addition, at least one of the following modules must also be selected: *occupation-specific information technology, entrepreneurship or supervision of work*.

Candidates must be able to produce aesthetic and functional bags and leather goods. They must be familiar with types of leather, special leathers and other materials and know how to obtain the required machinery, implements and materials. They must be able to independently design products and product families that are suitable for production. They must be capable of planning safe and economical production processes and they must be able to supervise other people's work performance.

Candidates must be able to design and make patterns suitable for production. They must command different cutting techniques, be familiar with different special cutting techniques used in the field and be capable of implementing and leading cutting work. They must command bench work: skiving, edge painting, printing, glueing and metal fitting. They must be able to sew samples and perform the necessary adjustments and basic maintenance on machinery. They must know how to finish a product and to provide instructions for finishing, packaging and storage.

Those who have completed the qualification may work as entrepreneurs, members of networks or employees of business enterprises within bags and leather goods production.

Specialist Qualification in Clothing

The common module of the qualification is *common vocational skills in the Specialist Qualification in Clothing*.

Depending on the specialisation, one of the following modules must be chosen: *compulsory module for specialist pattern-makers, compulsory module for specialist mechanics, compulsory module for specialist milliners, compulsory module for specialist knitters, compulsory module for specialist dressmakers, compulsory module for fashion consultants and compulsory module for specialist tailors*. In addition, one of the following modules must also be chosen: *special-size garments, leisurewear, cultural and role costumes, leather and fur products, supervision, occupational information technology and entrepreneurship*.

Candidates must be able to function in orientation and workplace instruction duties in their own workplace. They must be familiar with labour legislation and occupational health and safety law. They must know how to choose and acquire materials and tools, show co-operation skills in their work and work with different customers and partners.

Within their specialisation area, candidates must command materials, techniques and working methods, use of equipment, work and production planning, organisation of production and instructions and documentation relevant to the specific area.

Candidates taking the compulsory module for specialist pattern-makers must have extensive command of pattern-making and its technical and economic production requirements. They must have a good sense of shape and the ability to convert plane figures into three-dimensional form. They must command different areas of pattern-making, including sizing, pattern-making, shaping, fitting and pattern-grading, both manually and using computers.

Those taking the compulsory module for specialist mechanics must know how to purchase and service machinery and equipment used in the clothing sector. They must be familiar with the sources of error in machinery and equipment used in the field or in their business enterprise.

Those taking the compulsory module for specialist milliners must command products as a whole and their aesthetic details. They must understand the significance of quality in terms of entrepreneurship and customer service.

Those taking the compulsory module for specialist knitters must command the production process so as to be capable of supervising product development and production. They are specialists in knitting technology and related information technology. They must have the ability to develop operations in order to achieve the desired level of quality and productivity.

Those taking the compulsory module for specialist dressmakers must possess good pattern-making and sewing skills in making custom garments. They must have a good sense of shape and the ability to convert plane figures into three-dimensional form.

Those taking the compulsory module for fashion consultants must command the occupational field of fashion consultancy, be familiar with different meanings of clothing and the route of a garment from the drawing-board to the consumer in general terms. They must be able to communicate naturally and know how to make use of information and communications technologies in their work.

Those taking the compulsory module for specialist tailors must have extensive command of tailoring work. They must know how to use demanding materials and provide good customer service. They must know how to make overcoats, men's lounge and evening suits and women's skirt suits.

In terms of optional modules, candidates must command the special techniques, materials, products, situations, equipment and tasks of their chosen module and the skills and knowledge required.

Those who have completed the qualification may work in various assignments in the clothing industry or as entrepreneurs.

Specialist Qualification in Fur-dressing

The qualification comprises four compulsory and two optional modules. The compulsory modules are *knowledge of materials, design of fur products, pattern-making and shaping of fur products* and *preparation of fur products*. In addition, at least two of the following modules must also be selected: *preparation of multi-material products, fur accessories and trimmings, industrial production, entrepreneurship and marketing, occupation-specific information technology* or *research paper*.

Candidates must possess the capabilities required for handling fur materials and for preparing fur products. They must be familiar with production chains and purchasing processes in the fur business and with acts and decrees governing fur trade and they must also be conscious of the entire life cycle of fur products and of the field's environmental impacts. They must be aware of pelt matching methods, size and colour classifications and pricing systems. They must follow international developments in the field and the effects of fashions.

Candidates must understand the opportunities provided by product design, make use of trends and know the effects of different solutions on the production time and price of products. They must be able to utilise the properties of fur materials and design effective fur garments for different customers.

Candidates must be able to interpret different designs, take measurements, adapt basic patterns to make products according to designs and to shape different types of garments and their components. They must know how to make patterns, taking account of the effects of different materials on pattern-making. They must be able to use pattern-grading charts and command the main principles of pattern-grading. They must know how to make a product and have a product made as well as to provide instruction in and supervise production. They must command the different phases of the production process and must be able to draw up working plans, including product cards.

In addition, candidates must command the skills of their chosen specialist areas, such as design and implementation of multi-material products, fur garments and trimmings or transfer of products to industrial production.

Those who have completed the qualification may work in furrier businesses in different production assignments as well as in production planning and supervisory positions.

Specialist Qualification in Leather-dressing

The common modules of the qualification are *raw materials and products, process and work planning* and *production*. In addition, it is possible to take the *entrepreneurship* module.

Candidates must be able to select and acquire raw materials needed for leather-dressing. They must be familiar with different types and properties of raw hides and the effects of hide removal and preservation on the quality of the skin. They must be familiar with acquisition, receipt,

inspection and storage of raw materials. They must be familiar with different types of leather and their applications. They must know how to sort leather in different phases.

Candidates must know how to plan the correct dressing methods for different types of leather. They must know how to select the correct mechanical or manual working phases and chemical formulae. They must know how to plan production quality assurance and determine the check points.

Candidates must command leather-dressing processes and working phases, dependencies between working phases and the effects of these on product quality. They must command wet processes: soaking and liming, tanning and dyeing. They must also command the mechanical working phases of wet processes as well as finishing processes.

Candidates must command corrective actions. They must understand the effects of trouble-free operation of machinery and equipment on leather quality, operational safety, a business enterprise's financial results and customer satisfaction.

Candidates taking the entrepreneurship module must be able to assess their own personal potential to function as entrepreneurs. They must be able to examine the opportunities provided by the field to set up their own business.

Those who have completed the qualification may work in demanding leather-dressing assignments or in supervisory positions in business enterprises operating in the field.

Those taking the optional entrepreneurship module also possess the basic capabilities to start their own business.

Specialist Qualification in Textiles

The common modules of the qualification are *common vocational skills in the Specialist Qualification in Textiles* and *entrepreneurship and workplace instruction in the textiles sector*. In addition, at least one of the following modules must also be selected: *advanced craft manufacturing of textile products*, *advanced manufacturing and fitting of soft furnishings* and *advanced care, preservation and finishing of textiles*. All candidates may also choose to take the *entrepreneurship* module.

Candidates must know how to plan and implement a demanding manufacturing process. They must have extensive command of textile materials and know how to select appropriate materials for their product.

Candidates must command the process of manufacturing textile products. They must command tools and working methods and the use and maintenance of machinery and equipment. They must be able to choose correct finishing methods and make use of services provided by laundry and dry-cleaning establishments as part of finishing a product.

Candidates must be familiar with the financial management of a business enterprise as a whole. They must be familiar with the operational culture of various craft-intensive textiles businesses and recognise its significance in terms of the sector. Candidates must be capable of functioning as induction and development instructors at their own workplace, command labour legislation and comply with occupational safety regulations. They must be able to take environmental effects into account in their work throughout the product's life cycle. They must be capable of participating in the entire enterprise's quality improvement.

Advanced product manufacturing and care refer to craft-intensive work, which requires a broad range of manual skills and command of hand-operated tools and machinery as well as aesthetic, visual and cultural competence, in addition to good knowledge of materials.

Candidates must have extensive knowledge of their chosen field. Depending on their chosen module(s), they must command high-quality design and know how to plan an appropriate manufacturing process. They must be able to choose correct materials, techniques and tools. They must know how to make a product from start to finish and to finish the product to a high quality standard. They must know how to market and price their products and services.

Textiles craftspeople have the opportunity either to work as members of textiles teams within large-scale production in spinning mills, weaving mills, needling departments, non-woven fabric mills, knitting mills, textile printing mills, dye houses, finishing departments, or in a variety of different sectors and occupations within crafts and design or in their own business enterprise. They may operate as contract manufacturers for a larger textiles company or function as clients subcontracting their own products to different businesses, or make textiles as a sideline.

Specialist Qualification in Shoes

Candidates must select one of the following specialisation areas: footwear repairs (specialist cobbler), industrial footwear manufacturing (specialist shoemaker) and craft footwear manufacturing (specialist shoemaker).

At least four of the following qualification modules must be chosen: *product design, cutting, production of and repairs to shoe uppers, lasting or dressing of shoe uppers, soling and heeling, finishing, component production, maintenance, auxiliary tool production, materials management functions, customer service, entrepreneurship* and *special assignments*. The *special assignments* module may cover almost any special piece of work within the shoemaking field.

Candidates must be familiar with the history of footwear and different methods of footwear production. They must be familiar with materials used in footwear manufacturing and command footwear sizing systems. They must be familiar with foot anatomy and be aware of the effects of different types of footwear on how the foot works. In their work, they must be able to make use of their extensive basic skills.

Depending on their chosen specialisation area, candidates must command working phases and methods used for footwear and other leather products. They must be familiar with pattern-making and footwear sizing methods and know how to make use of these in their work. They must know how to draw up repair or work plans and explain these to their customers. They must be familiar with the tools, machinery and equipment used in their specialisation area and know how to use these. They must be familiar with raw materials and other materials used. They must be able to work to a high quality standard and in a cost-efficient manner, knowing how to price their products. They must be able to influence factors that are important for the work process as a whole and be capable of co-operation with their working community. They must be capable of sharing their competence with those intending to enter the field.

In addition, candidates must command the skills and knowledge of their chosen qualification modules.

Those who have completed the qualification may work in footwear repairs, industrial footwear manufacturing or craft footwear manufacturing.

AUTOMOTIVE AND TRANSPORT ENGINEERING

VOCATIONAL QUALIFICATIONS

- Vocational Qualification in Vehicle Technology
- Vocational Qualification in Air Traffic Control
- Vocational Qualification in Aircraft Maintenance
- Vocational Qualification in Logistics
- Vocational Qualification in Seafaring

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification in Airport Services
- Further Qualification for Bus Drivers
- Further Qualification for Car Mechanics
- Further Qualification for Car Salespeople
- Further Qualification in Cargo Handling
- Further Qualification for Drivers of Articulated Vehicles
- Further Qualification for Forest Machine Mechanics
- Further Qualification for Heavy Vehicle Mechanics
- Further Qualification for Parts Salespeople
- Further Qualification for Small Machinery Mechanics
- Further Qualification in Timber Lorry Transport
- Further Qualification for Vehicle Body Mechanics
- Further Qualification for Vehicle Crane Operators
- Further Qualification for Vehicle Electricians
- Further Qualification for Vehicle Painters
- Further Qualification in Warehousing

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification for Car Salespeople
- Specialist Qualification in Cargo Handling
- Specialist Qualification for Haulage Organisers
- Specialist Qualification for Supervisors in Vehicle Technology
- Specialist Qualification for Vehicle Body Mechanics
- Specialist Qualification for Vehicle Painters
- Specialist Qualification for Vehicle Mechanics

Vocational Qualification in Vehicle Technology

The compulsory module common to all competence areas of the qualification is *basic skills in vehicle technology*. In addition, candidates must also take the compulsory modules in each competence area and 3–6 optional modules, depending on their scopes.

The compulsory modules of the competence area in vehicle technology (Vehicle Mechanic) are *maintenance technology* and *diagnostics*. The optional modules are *engine repairs, maintenance of electrical equipment and engine controls, vehicle bodyshop work, testing and repair of electrical equipment of vehicles, maintenance and repair of small machinery, direct service work at a repair shop, maintenance and repair of lorry brake systems, repairs to lorry chassis and steering systems, maintenance and repair of hydraulic and pneumatic equipment* and *metal structures and welding*.

The compulsory modules of the competence area in vehicle body repairs (Vehicle Body Repairer) are *bodywork and materials technology, repair and straightening technology and installation technology*. The optional modules are *priming, repair of vehicle damage, vehicle safety technology, testing and repair of electrical equipment of the vehicles body and direct service work at a repair shop*.

The compulsory modules of the competence area in vehicle painting (Vehicle Painter) are *installation technology, bodyshop work, pretreatment techniques for painting and spray painting technology*. The optional modules are *toning technology; striping, text and design painting special painting, anti-corrosive painting; repair and painting of plastic parts and vehicle bodyshop work*.

The compulsory modules of the competence area in car sales (Car Salesperson) are *car and parts salesperson's general skills, marketing, sales work and customer service, car sales and basic vehicle technology*. The optional modules are *car and accessory sales, new car sales, used car sales, company car sales, commercial vehicle sales and parts sales work relating to vehicle technology*.

The compulsory modules of the competence area in parts sales (Parts Salesperson) are *car and parts salesperson's general skills, marketing, parts sales work and customer service, part and stockroom work and acquisitions and parts sales work related to vehicle technology*. The optional modules are *customer guidance and cost estimates, sale of vehicle body parts and surface treatment agents, heavy-duty vehicle parts work, small machinery technology and parts sales, industrial machinery and hydraulic parts sales and sales of electrical and diesel components*.

Vehicle Mechanics must be equipped for tasks requiring competence in vehicle technology, working methods, implements and customer service, whereas Vehicle Body Repairers must possess capabilities for repairs to the chassis, body and body fittings of damaged vehicles. Vehicle Painters must be able to carry out tasks related to surface treatment. Car Salespeople must be equipped to work in assignments related to the purchase, sale and marketing of new cars, replacement cars and their accessories. Parts Salespeople must command saleswork related to accessories and supplies.

Vocational Qualification in Air Traffic Control

The requirements of the competence-based qualification are currently being prepared.

Vocational Qualification in Aircraft Maintenance

The compulsory modules common to both competence areas of the qualification are *basics of aviation and aircraft maintenance technology*. The compulsory modules of the competence area towards licence category B1 (Aeroplane or Helicopter Line Maintenance Certifying Technician) are *aircraft systems and aircraft power plants, jet engines and aircraft power plants, piston engines*. The compulsory modules of the competence area towards licence category B2 (Avionic Line Maintenance Certifying Technician) are *aircraft systems, aircraft avionics and radio and navigation systems*.

Candidates must be familiar with aviation legislation and regulations according to JAR-66 Module 10 so as to be able to take these into account in aircraft maintenance work.

Candidates who have chosen the competence area towards licence category B1 must be able to perform different maintenance, repair, troubleshooting, defect rectification and inspection tasks of aircraft structures, systems, engines, devices and components. They must be able to

perform equipment replacements, sub-assembly and final assembly assignments and related testing measures, as well as different types of filling, greasing and lubrication tasks. In their work, they must know how to use common and special tools, testing and measuring devices and maintenance instructions.

Candidates who have chosen the competence area towards licence category B2 must be able to perform maintenance, troubleshooting, defect rectification, inspection, adjustment and testing tasks of equipment and systems containing aircraft's electrical functions, electronics and digital technology. They must be able to perform equipment replacements and related testing tasks. In addition to basic tools, they must know how to use the field's special measuring and testing devices as well as maintenance instructions.

Those who have completed the qualification possess extensive skills to work in all general assignments requiring competence in aircraft maintenance.

Vocational Qualification in Logistics

The compulsory module common to all competence areas of the qualification is *basic skills in logistics*.

The compulsory modules of the competence area in transportation services (Driver) are *service of vehicles, transportation, load handling and taxi transport*. A total of 20 credits must also be completed from the following optional modules: *lorry technology, specialisation in a specific service sector of freight transport, tasks of drivers in international transport, functioning as a transport entrepreneur, handling articulated vehicles, passenger transport, operation and maintenance of industrial machinery, storage technology, other optional studies and taxi transport*.

The compulsory modules of the competence area in transportation services (Bus Driver) are *service of vehicles, transportation, initial qualification in the transport sector, tasks of drivers in urban and commuter transport and tasks of drivers in service and chartered transport*. A total of 10 credits must also be completed from the following optional modules: *lorry technology, passenger transport, functioning as a transport entrepreneur, operation and maintenance of industrial machinery, other optional studies and taxi transport*.

The compulsory modules of the competence area in transportation services (Articulated Vehicle Driver) are *service of vehicles, transportation, load handling, initial qualification in the transport sector and driving articulated vehicles*. A total of 10 credits must also be completed from the following optional modules: *lorry technology, specialisation in a specific service sector of freight transport, tasks of drivers in international transport, functioning as a transport entrepreneur, handling articulated vehicles, passenger transport, operation and maintenance of industrial machinery, storage technology, other optional studies and taxi transport*.

The compulsory modules of the competence area in airport services (Airport Attendant) are *initial qualification in the transport sector, airport transport and maintenance, airport ground services and safety and rescue operations*. A total of 10 credits must also be completed from the following optional modules: *operation and maintenance of industrial machinery, other optional studies, airport service operations, loading aircraft and airside maintenance*.

The compulsory modules of the competence area in storage services (Warehouse Operative) are *acceptance inspections and storage of goods, picking of goods, dispatch of goods and stocktaking and balance management*. A total of 30 credits must also be completed from the following optional modules: *operation and maintenance of industrial machinery, functioning as a storage entrepreneur, storage*

services marketing, basics of break-bulk transport operations under the terms of the ADR, warehouse information systems, warehouse functions in a specific service sector, other optional studies and handling of dangerous substances.

Those who have chosen the competence area in transportation services must be able to function in customer service and transportation assignments. They must know how to transport customers and their products in a safe and profitable manner and to serve customers. They must be familiar with European regulations governing drivers and know how to comply with these. They must be familiar with the roadworthiness requirements of their vehicle and be able to ensure the technical and safe functionality of the vehicle and its accessories.

They must command the most common servicing measures and be able to replace spare parts using hand tools. They must know how to load a vehicle to the maximum load permitted by statutes and circumstances and to drive the vehicle safely, economically and responsibly. They must be familiar with insurance policies related to transport operations and with occupational health and safety statutes related to their work. They must be able to communicate by means of communications equipment used in vehicles and the transport sector. Drivers are required to hold a driving licence as stipulated in the Decree on Driving Licences and must meet the health requirements laid down in the decree.

Those who have chosen the competence area in airport services must be able to work in compliance with safety instructions relating to aviation. Airport Attendants must know how to carry out airport maintenance tasks in an international environment, using various types of machinery and equipment. They must know how to keep these in working order flexibly and punctually. They must command tasks relating to airfreight handling, such as loading aircraft safely. They must know how to move, load and unload aircraft using different equipment. Airport Attendants must know how to serve customers and maintain safety.

Those who have chosen the competence area in storage services must be able to perform warehousing tasks manually, mechanically, such as using a forklift truck, or with automated equipment. They must be able to manage warehouse documents and stock accounting manually or using information technology. They must be aware of the effects of stock economics on the finances of a business enterprise and be familiar with the basic operations of international material flows.

Those who have completed the qualification possess extensive skills to work in all general assignments requiring competence in the warehouse and transport sector and in specific assignments according to their chosen competence area.

Vocational Qualification in Seafaring

The compulsory modules of the competence area in deck and engine repairing (Repairer) are *watchkeeping rating, deck and engine* (basic competence in seafaring, STCW 95 Code A-II/4 and A-III/4); *general technical skills; maritime transport technology, cargoes and cargo handling equipment; marine engineering, marine machinery and auxiliary systems; electrical and electronic engineering and service and maintenance*. One of the following optional modules must also be taken: *boatmaster, information and communications technology*.

The junior seaman module requires completion of the following compulsory modules: *watchkeeping rating, deck and engine, general technical skills; maritime transport technology, cargoes and cargo handling equipment and service and maintenance (deck department)*.

The motorman module requires completion of the following compulsory modules: *watchkeeping rating, deck and engine; general technical skills; marine engineering; marine machinery and auxiliary systems and service and maintenance (engine department).*

The compulsory modules of the competence area in electrical operation (Ship's Electrician) are *watchkeeping rating, deck and engine (A-II/4 and A-III/4); electrical engineering; electronics; electrical machinery and equipment; alarm and control equipment; marine automation technology; marine electrical and engine operations and navigational and communication equipment.* One of the following optional modules must also be taken: *general technical skills, information and communications technology.*

The compulsory modules of the competence area for deck officers (Deck Officer) are *watchkeeping rating, deck and engine (A-II/4 and A-III/4); navigation (A-II/1); maritime transport technology (A-II/1); seamanship and management (A-II/1 and A-III/1) and in-service training (A-II/1.6).* One of the following optional modules must also be taken: *General Operator's Certificate (A-IV/2-GOC), engine attendant (A-VI/4-2), medical first aid (A-VI/4-2).*

The compulsory modules of the competence area for engineer officers (Watchkeeping Engineer Officer) are *watchkeeping rating, deck and engine (A-II/4 and A-III/4); marine engineering (A-III/1); seamanship and management (A-II/1 and A-III/1); electrical and electronic engineering I (A-III/1); service and maintenance (A-III/1) and in-service training (A-III/1.2).* One of the following optional modules must also be taken: *electrical and electronic engineering II, skipper on domestic voyages, boatmaster, Restricted Operator's Certificate (A-IV/2, ROC).*

In-service training is compulsory for those candidates who have not completed 24 months of approved seagoing service and work experience as laid down in the Decree on the Safe Manning of Ships, Standards of Certification and Watchkeeping for Seafarers (1256/1997, Section 27(1)(3)(b)).

Those who have completed the competence area in deck and engine repairing are qualified to work as watchkeeping ratings for service in the deck and engine departments in accordance with the amended Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW 95), the corresponding EC Directive and national Decree.

Those who have completed the competence area in electrical operation are qualified as ratings forming part of navigational and engine room watches in accordance with the above-mentioned documents and they are qualified to function as ship's electricians aboard a vessel. Those who have completed the competence area for deck officers are entitled to function as officers in charge of the navigational watch.

Those who have completed the competence area for engineer officers are entitled to function as officers in charge of the engineering watch.

Further Qualification in Airport Services

The qualification requires acceptable completion of a total of five modules.

The common modules of the qualification are *general skills in airport services and operating in an airport environment.* Three of the following modules must also be selected: *airport maintenance,*

servicing of maintenance and ground service equipment, aircraft and airport ground services and rescue operations. In addition, it is possible to take the *entrepreneurship* module.

Candidates must command airport customer services, the necessary information technology and regulations governing occupational health and safety, security and waste management. They must possess sufficient language skills and be able to acquire information. They must understand airport services as a whole and be able to comply with regulations and instructions governing the field, being capable of taking proper action in common accident situations and in exceptional property maintenance situations.

Candidates must command maintenance tasks within the airport area and know how to service equipment and machinery used for this purpose. They must command the basics of meteorological technology, be familiar with the operations of weather services and be able to interpret different types of messages. They must be familiar with airport electrical and lighting systems, aircraft arresting systems as well as ground equipment and electrical and communication systems used for air navigation services.

As team members, candidates must be able to load and unload aircraft and carry out servicing as required. They must be familiar with the signs and markings used to guide and move aircraft. They must be familiar with different types of aircraft and fuel and command anti-icing and de-icing treatments for the most important aircraft.

Those who have completed the qualification may work at airports in various maintenance, servicing and customer service assignments.

Further Qualification for Bus Drivers

The common modules of the qualification are *vehicle technology, co-operation and customer services and safety*. At least two of the following optional modules must also be taken: *urban transport, long-distance transport, chartered transport*. It is also possible to take the *entrepreneurship* module either additionally or as an individual part of the qualification. Candidates are required to hold the class D driving authorisation and licence.

Candidates must be familiar with the roadworthiness requirements of their vehicle and must know how to ensure the functionality of the vehicle and its equipment and accessories. They must know how to service, repair and replace broken vehicle and accessory parts. They must be aware of the significance of observing their environment in different transport, servicing and repair situations. They must be familiar with the operating methods and objectives determined in the business idea of the enterprise as well as with the basics of business operations. They must be aware of the effects of their work performance on the enterprise's financial results. They must understand the significance of co-operation and customer relations to the organisation and the effects of service on customer satisfaction. They must know how to use their interaction skills in different situations and to use the communications and IT equipment that they need in their work. They must be able to drive a bus safely, economically and responsibly and in accordance with instructions and statutes. They must be familiar with the rights and responsibilities of drivers and must take appropriate action in the event of accidents. They must know how to take the first aid measures conforming to the first aid 1 and first aid 2 courses and to use initial fire-fighting and safety equipment. They must be familiar with the Working Hours Act and with regulations governing driving and rest periods and must know how to use equipment that records

driving and rest periods. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification possess the capabilities to drive buses and coaches in scheduled, express, contract and chartered transport.

Further Qualification for Car Mechanics

The common modules of the qualification are *general skills of a car mechanic, basic skills in car technology* and *general automotive electrical engineering skills*. In addition, at least two of the following modules must also be taken: *mechanical repairs of engines and transmission equipment; mechanical repairs of chassis, brake and steering systems; control systems of engines, gearing and driving dynamics* and *body electrical systems*. In addition, all candidates may also take the optional *entrepreneurship* module.

Candidates must command the required basics of mathematics and science and be able to manage their duties in a foreign language. They must command repair terms and conditions and the basics of the Consumer Protection Act and must take note of regulations governing occupational health and safety and waste management as well as occupational ergonomics. They must know how to work economically and to a high quality standard. They must know how to use different measuring and test equipment and how to interpret its readings. They must know how to seek information from different sources.

Candidates must know how to perform inspections and repairs prior to roadworthiness tests and service the most common passenger cars and vans. In terms of handling cooling and refrigeration systems, they must command the skills required by the Safety Technology Authority (TUKES). They must command the basic structures, operations and troubleshooting of the electrical and electronic vehicle systems of the most common passenger cars and vans. They must be familiar with the structure of circuit diagrams. They must know how to repair the engines of the most common passenger cars and vans and auxiliary equipment relating to engines, as well as clutches, gearboxes, drive and differential gears, and propeller and drive shafts.

In addition, candidates must command specialist skills and knowledge according to their chosen modules. Among other things, they must know how to perform measurements and tests relating to chassis, suspension, brake and steering equipment of cars and vans, interpret measurement readings and repair mechanical defects. They must be familiar with the engine, gearing and driving dynamics systems and know how to test, service and repair these. They must be familiar with body electrical systems and know how to repair these and install accessories.

Those who have chosen the entrepreneurship module must be aware of the concepts of business activities and different forms of enterprise. They must be familiar with their own potential, opportunities within their field and the requirements of entrepreneurship.

Those who have completed the qualification may work in repair and service assignments of vans and passenger cars.

Further Qualification for Car Salespeople

The compulsory modules of the qualification are *general skills of car and/or machinery salespeople, sales work and customer service, marketing, automotive and/or machinery trade* and *technical advice and cost estimates*. The competence tests of the qualification may specialise in sales of cars, lorries and

buses or industrial machinery. In addition, it is also possible to take the *entrepreneurship* module.

Those who have completed the qualification are familiar with the basics of the Consumer Protection, Sale of Goods and Product Liability Acts governing the automotive and/or machinery trade. They are familiar with the cost structure, the basics of margin accounting and the proceeds of sales and profitability of business enterprises operating in the field and understand the effects of these on business finances. They command personal sales work and understand the significance of customer service. They command the use of different means of payment and financing alternatives.

Those who have completed the qualification are familiar with products in their field and the different phases and tasks involved in the automotive or machinery trade. They are able to offer customers the right products with the necessary accessories. They are able to function as buyers at trade-in centres and know how to determine accurate purchase prices and trade-in prices. They have sufficiently broad knowledge of the basic technical functions of the most common products and they are capable of providing information on a product and its use. They know how to handle vehicles properly in presentation, delivery, pricing and test drive situations.

Those who have completed the qualification command the marketing practices and methods of the field and their own organisation. They are able to plan and implement showroom displays and compositions and to prepare marketing plans and written offers.

Those who have completed the qualification mainly undertake assignments related to the sales, purchasing and marketing of new and used cars and accessories for them.

Further Qualification for Drivers of Articulated Vehicles

The common modules of the qualification are *vehicle technology, co-operation and customer service and safety*. At least two of the following optional modules must also be taken: *break-bulk transport operations, bulk and special transport operations, tank transport operations, long-distance timber transport operations*. It is also possible to take the *entrepreneurship* module either additionally or as an individual part of the qualification. Candidates are required to hold the class CE driving authorisation and licence.

Candidates must be familiar with the roadworthiness requirements of their vehicle and must know how to ensure the functionality of the vehicle and its equipment and accessories. They must know how to service, repair and replace broken vehicle and accessory parts. They must be aware of the significance of observing their environment in different transport, servicing and repair situations. They must be familiar with the operating methods and objectives determined in the business idea of the enterprise as well as with the basics of business operations. In their work assignments, they must know how to apply the requirements of their enterprise's quality and environmental systems. They must understand the significance of co-operation and customer relations to the organisation and the effects of service on customer satisfaction. They must know how to communicate by means of the communications equipment and hand signals used in vehicles and in the transport sector and use the IT applications needed in their work assignments. They must command the statutes and safety measures related to coupling and parking a lorry and a vehicle on tow. They must drive articulated vehicles in a safe, economical and responsible manner and in accordance with statutes. They must know how to apply regulations governing break-bulk transport operations of dangerous substances in their work and they must hold a valid licence entitling them to carry out break-bulk transport operations

under the terms of the ADR. They must know how to take the first aid measures conforming to the first aid 1 and first aid 2 courses and to use initial fire-fighting and safety equipment. They must be familiar with the Working Hours Act and the regulations governing driving and rest periods and must know how to fill in documents related to these. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification possess the capabilities to drive and load lorries and articulated vehicles.

Further Qualification in Cargo Handling

The qualification comprises the following common modules: *knowledge of business, customers and products; basics of cargo handling; mechanical cargo handling; signalling and traffic control*. In addition, one of the following modules must also be taken: *cargo securing, cargo tallying, deck lifting work, crane work, special machinery work and port-specific specialist work*.

Candidates must know how to use the business enterprise's information and communications systems, interpret reports and indicators of their working area and comply with business security regulations. They must command customer service and be familiar with the products being handled, including their quality requirements and handling labels.

Candidates must command securing and detaching goods and cargo units on vessels, on quays and in the warehouse area. They must apply correct and ergonomic working methods. They must know how to comply with occupational safety legislation and business security regulations. They must know how to handle goods and units using a variety of cargo-transfer equipment. They must command the basics of information technology and know how to retrieve/feed data from/into the information system. They must be able to work independently in routine cargo-handling assignments. They must know how to act and protect themselves appropriately when handling dangerous goods (Government Decree 251/2005 on the Transport and Temporary Storage of Dangerous Goods in a Port Area).

Candidates must be able to implement the loading order safely, systematically and independently. They must be able to guide crane and/or deck machine operators by means of approved hand signals or by radio, such that the operator is able to control the load in all conditions. They must be able to control traffic on ship ramps, on decks, at terminal doors and in outdoor storage areas.

Candidates must possess the vocational skills required in their chosen qualification modules. Among other things, they must know how to secure and lash cargo. They must know how to check and document incoming and outgoing goods. They must know how to control deck machinery and operate on-board lifting and conveyor equipment. They must know how to operate rail-mounted cranes, rubber-tired gantry cranes, mobile cranes or quayside jib cranes. They must know how to handle goods and cargo units using special machinery, such as terminal tractors, reach stackers, container handlers, wheeled loaders or straddle carriers. They must be able to carry out port-specific specialist assignments. The Qualification Committee for Cargo-handling will decide in advance on the types of port-specific specialist work that are acceptable as part of the qualification.

Those who have completed the qualification may work in port cargo-handling assignments.

Further Qualification for Forest Machine Mechanics

The modules of the qualification are *repairs to machinery*, *entrepreneurship* and *communication*.

Candidates must be capable of logical troubleshooting, of obtaining the required spare parts and accessories, of repairing a forest machine economically and of testing the success of their repair measures by running or operating the machine. They must also be familiar with the cost structure of a forest machine enterprise, be able to apply the basics of marketing and understand the significance of customers and customer service in entrepreneurship. They must command the use of communication devices and networks and be able to present their own work and machinery.

Those who have completed the qualification may work as forest machine fitters, servicing advisers, heavy machine fitters, hydraulics fitters, driver-fitters, earthmover fitters, field maintenance men, forest machinery demonstrators and salespeople.

Further Qualification for Heavy Vehicle Mechanics

The compulsory module common to both competence areas of the qualification is *general skills of a heavy vehicle mechanic*. The compulsory modules of the competence area in lorry and bus technology are *service of heavy vehicles* and *repair of chassis, brake and steering systems in heavy vehicles*. One of the following optional modules must also be taken: *repair of heavy vehicle power transmission*, *repair of heavy vehicle engines*, *repair of heavy vehicle accessories*. The compulsory modules of the competence area in industrial machinery technology are *structural repairs* and *repair of chassis and control equipment*. One of the following optional modules must also be taken: *engines and power transmission*, *hydraulics and pneumatics*, *electrical engineering and electronics*. It is also possible to take the *entrepreneurship* module either additionally or as an individual part of the qualification.

Candidates must be proficient in the use of computers used in vehicle repair shops as tools and test equipment as well as use of the Internet and other networks for information acquisition and communication. They must command the repair terms and conditions and the basics of the Consumer Protection Act and know how to produce diagnoses, cost estimates and schedules required in direct service tasks. They must be familiar with the cost structure of repair shops and the basics of customer service, marketing and business economics. They must be able to acquire the information they need for servicing tasks from general sources of information available for repair shops, including English-language texts. They must take regulations and guidelines governing occupational health and safety and environmental protection into account in their work.

Candidates who have chosen the competence area in lorry and bus technology must be familiar with the structures and operations of heavy vehicles and know how to perform servicing tasks and vehicle inspections. They must be familiar with the structures and operating principles of the most important electrical and electronic systems and know how to locate faults in them. They must know how to handle heavy vehicles and vehicle combinations so as to be capable of transferring vehicles and checking their operating condition at the repair shop. They must be familiar with the basic technologies, structures and operations of the most common chassis, brake and steering systems in heavy vehicles and know how to perform diagnostic, repair and servicing tasks.

Candidates who have chosen the competence area in industrial machinery technology must be familiar with the tools and raw materials used in repairs to industrial machinery and equipment. They must know how to plan and perform structural repairs in accordance with the quality requirements provided and take the shapes of components and the basics of weld connection into account.

Candidates must be familiar with the structures and operating principles of the chassis, steering and brake systems in tracked and wheeled chassis industrial machinery and those of cab equipment and pilot equipment. They must know how to perform testing, adjustment, servicing and repair tasks on chassis and control equipment.

In addition, candidates must command the skills and knowledge of the module of their chosen competence area.

Those who have completed the qualification may work in heavy vehicle repair and servicing assignments.

Further Qualification for Parts Salespeople

The modules of the qualification are *general skills of parts salespeople, sales work and customer service, marketing, acquisition and storage of spare parts* and *technical advice and cost estimates*. In addition, it is also possible to take the *entrepreneurship* module.

Candidates must be familiar with the basics of Consumer Protection, Sale of Goods and Product Liability Acts governing the spare parts and accessories trade and with the repair terms and conditions of motor vehicles and their parts. They must be familiar with the cost structure, the basics of margin accounting and the proceeds of sales and profitability of business enterprises operating in the field and understand the effects of these on business finances. They must command personal sales work and understand the significance of customer service. They must command the use of different means of payment and financing alternatives.

Candidates must know how to store and take stock of spare parts. They must know how to order and dispatch products and inspect incoming products. They must understand the principles of pricing and be familiar with tasks related to invoicing. They must be familiar with the product ranges of importers and wholesale firms and know how to select the range of products to stock in a profitable manner both in terms of customers and the business. They must command the marketing practices and methods of the field and their own organisation. They must be able to plan and implement shop displays, shelves and compositions and to prepare marketing plans and written offers.

Candidates must be familiar with the overall structures of motor vehicles and/or machinery and the operations and functions of different devices and parts. They must be capable of providing customers with information on products and their uses and advice on statutory aspects. In addition to spare parts, they must be able to offer customers any other parts and supplies needed in connection with the planned work or parts or product packages that are better equipped to meet customer needs. They must be able to prepare cost estimates for the required spare parts.

Those who have completed the qualification mainly work as salespeople in vehicle showrooms or other spare parts outlets and they may specialise in spare parts services for light- or heavy-duty vehicles, industrial machinery, small machinery, etc.

Further Qualification For Small Machinery Mechanics

The three common modules of the qualification are *general skills of small machinery mechanics, liquid fuel, refrigeration and motor control equipment* and *customer service, marketing and business economics*. In addition, at least two of the following modules must be taken: *power and clearing saws and other hand-operated small machinery, landscaping machinery, snowmobiles and all-terrain vehicles, outboard motors and jet skis, motorcycles and mopeds, light quadricycles and bicycles*. In addition, it is also possible to take the optional *entrepreneurship* module.

Candidates must be familiar with the structures, fuel and electrical systems of commonly used small machinery and related auxiliary equipment. Candidates must be able to receive work orders and jobs, draw up cost estimates, determine defects and servicing and repair measures, troubleshoot, perform periodical servicing, repair, adjustment and testing functions, test runs, work inspection and finishing tasks, deliver completed machinery and provide user instructions. They must be aware of the restrictions on repairs to electrical machinery (requiring a specific certificate of qualification for electrical work).

Candidates must be familiar with spare parts systems and know how to use spare parts catalogues in the field. They must know how to order and acquire spare parts and supplies and know how to use spare parts, equipment, supplies and materials economically. They must know how to operate and test drive small machinery that they have repaired, paying attention to occupational safety in their work. They must be able to provide guidance in the use of machinery. They must be familiar with product guarantee systems and comply with relevant conditions and instructions.

Candidates must understand the principles of business economics and command customer service and product demonstrations related to marketing. They must possess the basic competence required for using the IT equipment and software required in work assignments in their own field. They must also be able to acquire the necessary technical information, electrical ratings, etc., from English-language sources, repair shop manuals and service bulletins. They must command basic mathematics, physics and chemistry tasks as required in their occupation.

Candidates must command servicing, repairs and adjustments of machinery included in their chosen modules.

Those who have completed the qualification may work in various assignments requiring extensive work experience in enterprises selling and servicing small machinery and as independent entrepreneurs.

Further Qualification in Timber Lorry Transport

The qualification comprises the following common modules: *vehicle technology, transport technology, working in a timber yard, quality and customer service* and *legislation*. The optional module is *entrepreneurship*. Candidates are required to hold the class CE driving authorisation and licence.

Candidates must be familiar with the control equipment and accessories of the vehicle to be used during the competence test.

Candidates must know different structures of timber transport vehicles, being able to distinguish between forestry and so called return vehicles (combination tanker/flatbed). In addition, they must be aware of the applications and special characteristics of the vehicles and be able to interpret registration documents.

Candidates must be able to service vehicles and use hand tools to replace the most common spare parts. They must be able to take account of the possibility of additional damage and to determine required repairs in connection with any possible visits to the garage. They must take quality and environmental requirements into account in their work.

Candidates must be able to use the special equipment of timber transport vehicles safely and determine their safe working order. They must know how to handle their vehicle in different road and weather conditions and to load the vehicle properly. They must be able to keep records of transport orders and certificates of receipt.

Candidates must be able to plan and organise timber yards (terminals) into complete functional facilities and be aware of the importance of keeping different timber consignments separate.

Candidates must be able to recognise and sort commercial types of timber and be familiar with the properties of timber to be transported. They must be familiar with the basics of measurements in a vehicle using a variety of techniques.

Candidates must be able to estimate the amount of surplus remaining from a timber consignment for the stock register or to decide on a timber consignment or deal. They must be familiar with the most common unloading procedures and receipt operations at plants and sawmills.

Candidates must be able to define the significance of co-operation and customer relationships to an organisation. They must be familiar with the cost structure of a business enterprise and be aware of the significance of their own actions to the transport company.

Candidates must be familiar with the Working Hours Act and the regulations governing driving and rest periods and must know how to fill in documents related to these. They must know how to use vehicle computers, tachographs or digital driving control equipment. They must be familiar with regulations and legislation governing their field and general road transport instructions.

Further Qualification in Warehousing

The common modules of the qualification are *working phases of storage processes, organisation of storage processes, development of storage processes and working environments, development of personal actions and working communities* and *logistics cost management*. In addition, at least two of the following modules must be taken: *management of demand-supply chains, international deliveries, storage and dispatch of dangerous substances and chemicals, logistics services* and *haulage arrangements in warehouse operations*. It is also possible to take the *storage service entrepreneurship* module either additionally or as an individual part of the qualification.

In addition, the Requirements of the Specialist Qualification in Warehousing include the requirements for the European Certification for Logistics Professionals at European Junior Logistician (EJLog) level conferred by the European Logistics Association (ELA).

Candidates must command both the working phases and organisation of storage processes. They must know how to receive, pick, pack and dispatch goods properly. They must have a broad overview of the logistics cost structure and factors influencing the quality of storage work.

Candidates must be able to serve customers, be capable of encouraging staff in their supervisory work and know how to provide employees with orientation within the organisation

and in altered tasks. They must command the collective agreement in their field and acts and decrees governing the world of work. They must take occupational safety and environmental statutes into account. They must be capable of participating in staff recruitment. They must know how to prepare a budget for staff expenses in their own workplace and monitor its implementation. They must command the key principles of capital expenditure accounting. They must command negotiation procedures and meeting techniques. In addition to their own mother tongue, they must also be able to manage in different interactive situations in a language relevant to organisational operations.

Candidates must understand the key phases of demand-supply chains and the significance of overall planning. They must know how to carry out their enterprise's purchasing and delivery policies and be able to explain how to maintain and assess the quality of co-operation with suppliers, subcontractors and customers. They must understand the significance of collaboration between purchasing, production and storage to control of the purchasing-supply chain. They must be familiar with domestic and international terms of delivery and assume responsibility as consigners and recipients for compliance with the related rights, duties and responsibilities. They must be familiar with the operational principles of international transport operations for different modes of transport and with legislation governing these in general terms. They must be able to handle transport documents competently. They must be familiar with the key operational principles of the import and export trade and the tasks and responsibilities of forwarders. They must be aware of the principles of cost formation of international deliveries with different modes of transport and be able to seek and compare alternative solutions.

Candidates must be aware of classes of dangerous substances and chemicals which are subject to the Government Decree governing storage of dangerous substances and chemicals. They must be familiar with general instructions concerning storage, packages and package labelling of dangerous substances and chemicals as well as Material Safety Data Sheets and safety instructions for products and be able to attend to compliance with these.

Candidates must be familiar with the main points of common statutes relating to transport of dangerous substances. They must attend to packing and dispatch of dangerous substances and chemicals within their own workplace and to preparing transport documents in accordance with ADR legislation. They must be familiar with different procedures used by storage service entrepreneurs, complementary services related to storage services in domestic and international activities and with the most common principles of pricing logistics services.

Candidates must understand factors influencing purchasing of logistics services. They must be familiar with different transport services and be able to justify their choices of such services. They must know how to plan schedules for incoming and outgoing goods and local delivery routes. They must be able to perform calculations concerning the required loading space and to determine freight rates in domestic break-bulk transport. They must be aware of the basic concepts of business activities and different forms of enterprise. They must be aware of the factors that need to be considered when planning business operations and be able to assess their own potential and opportunities to function as entrepreneurs.

Those who have completed the qualification may work in assignments requiring experience in responsible storage work in warehouses and purchasing departments in industry, wholesale and retail trade, transport and haulage businesses, customs and port departments and other such fields, including international assignments. Some may also work in public administration and as independent entrepreneurs.

Further Qualification for Vehicle Body Mechanics

The modules of the qualification are *general skills of vehicle body mechanics; installations and repairs; welding, sheet metal work and plastic repairs; replacement, straightening, fitting and measuring of body and surface parts; measuring and straightening of frames and bodies and priming*. In addition, it is also possible to take the separate *entrepreneurship* module.

Candidates must understand the significance of customer service and marketing in their work. They must command information technology used in vehicle repair shops. They must command spare parts systems, the field's English terminology and the provisions of the Consumer Protection Act to the extent necessary.

Candidates must be familiar with the structures and basic technology of the most common passenger cars and vans. They must know the structures of vehicle chassis, brake and steering systems and the requirements to repair these. They must understand the significance of the engine and transmission to vehicle operations. They must command the basic technology of electrical equipment and be capable of making the connections required in body repairs. They must know how to remove and fit parts required in body shop work. They must know how to measure and adjust steering angles. They must be familiar with the physical properties of the metallic materials that they use and be able to weld and join these. They must be familiar with properties influencing the workability of materials. They must know how to work metal sheets and weld these using different welding techniques (gas, MIG and resistance welding). They must command different soldering and brazing techniques (including metal bonding). They must be able to identify the types of plastics used in body structures and know how to choose appropriate repair techniques. They must master corrosion protection and be familiar with the effects of neglected corrosion prevention and a repair shop's responsibility in such cases.

Candidates must be familiar with the raw materials and properties of surface parts used in vehicles. They must know how to straighten surface parts and be familiar with parts replacement techniques. They must be familiar with the spare parts available and know how to choose appropriate alternatives. They must know how to straighten, replace and fit vehicle body parts. They must be familiar with body shop measuring equipment and know how to perform body measurements. They must know how to replace glass units. They must know how to assess both body damage as a whole and damage to individual parts. They must know how to determine the amount and extent of damage. They must be familiar with different types of measuring and straightening equipment and know how to use these. They must understand the behaviour of different materials in drawing and straightening situations. They must be able to take account of the limitations set by different materials on heat treatment. They must be able to identify materials which must not be straightened.

Candidates must understand the basic vehicle painting technique. They must be familiar with the materials, facilities, equipment and tools used. They must be aware of the significance of surface preparation to successful paintwork and know how to carry out priming. They must know how to carry out tinning required in straightening. They must know how to use anti-corrosion primers in connection with welding work. They must be able to putty seams required for corrosion protection.

Those taking the optional entrepreneurship module must be able to assess their own entrepreneurial potential. They must command the basics of entrepreneurship.

Those who have completed the qualification may work in skilled positions in the field at vehicle repair shops or as independent entrepreneurs.

Further Qualification for Vehicle Crane Operators

The qualification comprises four compulsory modules: *basic skills of a vehicle crane operator, crane structure and maintenance, crane transfers* and *operating a crane in different environments*.

It is also possible to take the following modules: *operating a loading crane in installation work, operating a reach truck in lifting work, passenger hoists with vehicle chassis* and *entrepreneurship*.

Candidates must be familiar with the structures and operating principles of different hydraulic and latticed boom vehicle cranes and loading cranes. They must know how to use them in accordance with lifting plans, occupational safety regulations and operating instructions. They must be able to interpret lifting capacity tables, be familiar with factors influencing crane stability and be able to plan ordinary lifting operations in collaboration with the orderer. They must be familiar with the requirements on inspections of cranes and lifting aids and be able to perform routine and periodic crane servicing tasks independently. They must be able to drive vehicle cranes safely in various traffic conditions and transfer cranes in compliance with road traffic regulations and the special rules on heavy-duty vehicles and special transport operations. They must have an overview of lifting work on construction sites, in industry and at ports and of the relevant special regulations. They must be familiar with the core elements of the division of responsibilities and tasks between the various parties involved in lifting assignments. They must be able to apply the main principles of economic activities in their work. They must work with customers and the members of their working community in a co-operative and service-oriented manner.

The holders of the qualification certificate are entitled to work as vehicle crane operators and those who have taken the operating a loading crane in installation work module are entitled to use loading cranes in installation tasks (Government Resolution 856/98, Section 59).

Further Qualification for Vehicle Electricians

The common modules of the qualification are *general skills of a vehicle electrician, vehicle technology* and *vehicle electrical engineering and electronics*. Depending on their chosen competence area, candidates may specialise in passenger car technology, lorry and bus technology or industrial machinery technology in the competence tests. One of the following optional modules must also be taken, according to the competence area: *fitting and repair of electrical and electronic equipment and liquid fuel systems of spark ignition engines in passenger cars, fitting and repair of electrical and electronic equipment in lorries and buses, fitting and repair of electrical and electronic equipment in industrial machinery*. It is also possible to take the *entrepreneurship* module either additionally or as an individual part of the qualification.

Candidates must be proficient in the use of computers used in vehicle repair shops as tools and test equipment as well as use of the Internet and other networks for information acquisition and communication. They must command repair terms and conditions and the basics of the Consumer Protection Act and know how to produce diagnoses, cost estimates and schedules required in direct service tasks. They must be familiar with the cost structure of repair shops and the basics of customer service, marketing and business economics. They must be able to acquire the information they need for servicing tasks from general sources of information available for repair shops, including English-language texts. They must take regulations and

guidelines governing occupational health and safety and environmental protection into account in their work.

Candidates must be familiar with the technologies, structures and operations of the most common vehicles or machinery in their chosen competence area and know how to perform routine servicing, testing and diagnostic tasks. They must understand the structures and operations of vehicle electrical and electronic systems, equipment and their components. They must know how to perform fitting, testing and adjustment tasks of commonly used electrical and electronic systems, equipment, accessories and their components. They must know how to repair their defects in accordance with manufacturers' instructions. They must know how to perform measurements and testing tasks, using commonly applied measuring and test equipment. In addition, they must command the skills and knowledge of the module of their chosen competence area.

Those who have completed the qualification may work in repair and servicing assignments of electrical and electronic systems of passenger cars, heavy vehicles or industrial machinery.

Further Qualification for Vehicle Painters

The common modules of the qualification are *general skills of vehicle painters; pretreatment, puttying, grinding and painting tasks in surface preparation; spray painting, tinting and paint mixing; plastic painting, striping and lettering and design and special painting; body fitting and body shop work*. In addition, it is also possible to take the separate *entrepreneurship* module.

Candidates must understand the basics of customer service and marketing. They must understand the basics of business economics and economic activities. They must be capable of cooperating with other people and they must have a comprehensive overview of the field. They must command basic mathematics, physics and chemistry tasks as required in their occupation. They must also be able to acquire information from texts in English. They must understand the requirements of waste management, occupational health and safety and environmental protection. They must be familiar with the Consumer Protection Act and repair terms and conditions. They must be familiar with the basics of information technology. They must be able to plan their own work and act in accordance with the plan. They must know how to prepare written work orders and cost estimates, using vehicle paint shop pricing instructions.

Candidates must know how to use different paints, pastes, polishing and cleaning agents and working methods and techniques. They must know how to use and service the machinery and equipment used in their work. They must be able to take the requirements of occupational health and safety into account.

Candidates must master the working phases of priming work and understand their purpose. They must know how to perform pretreatments and vehicle protection tasks. They must command different rust removal techniques and their use. They must know how to select the correct priming method for each application. They must be familiar with the operating principles of a painting chamber and know how to make basic adjustments according to manufacturer's instructions. They must know how to mix paints and find tints. They must master top coat painting and the phases of spot painting and blending. They must be able to repair paint imperfections and finish vehicles such that they are fit for delivery.

Candidates must be able to identify the types of plastics used in vehicles and know how to select correct methods for each application. They must be able to select appropriate materials

and paint all plastic parts external to the bodywork. They must know how to attach stripes and stickers. They must be familiar with design painting and the basics of lettering. They must know how to perform complete painting, spot painting and blending tasks using multicoat painting techniques. They must understand the basics of electrical engineering and measuring technology. They must know how to locate simple defects in part attachments. They must know how to test and replace batteries. They must know how to install vehicle lights according to instructions and check their functionality. They must understand start-up problems. They must know how to fit external vehicle parts after painting.

Candidates must be familiar with common body structures, raw materials, bodyshop tools and working methods. They must know how to remove, mark and attach bodywork parts for painting. They must know how to carry out minor straightening tasks using hand tools. They must be able to identify different types of plastics and master basic repairs to these.

Those taking the optional entrepreneurship module must be able to assess their own entrepreneurial potential. They must command the basics of entrepreneurship.

Those who have completed the qualification may work in priming, corrosion prevention and painting assignments at vehicle paintshops, repair shops and factories or as independent entrepreneurs.

Specialist Qualification for Haulage Organisers

The common modules of the qualification are *human resources management and co-operation skills, economy and profitability* and *marketing and customer services*. One of the following optional modules must also be taken: *production planning for passenger transport, production planning for freight transport*. In addition to these, it is possible to take a separate module related to *entrepreneurship* in passenger transport or freight transport.

Candidates must understand the significance of managing people as a differentiator of an organisation in competitive terms. They must be familiar with the psychology and laws of individual and group behaviour and must actively promote co-operation within their organisation. They must be capable of analysing themselves as superiors. They must be familiar with the principles of agreement legislation and consumer protection legislation as well as the essential contents of labour legislation and collective agreements. They must be aware of the functions of business administration and of factors influencing the profitability of business enterprises.

Candidates must know how to price and invoice services and to interpret financial reports. They must be able to assess the profitability and cost-efficiency of the functions entrusted to them and to budget for the operations of their unit. They must know how to apply the field's marketing principles, agreements and legislation in practical work situations. They must possess sales, customer service and communication skills. In addition to Finnish and Swedish, they must be able to communicate in at least one foreign language that is important to their organisation. They must be familiar with meeting and negotiation procedures. In addition, they must command the skills and knowledge of their chosen optional module.

Those who have completed the qualification possess the capabilities to function in supervisory positions in haulage arrangements, marketing and customer services in passenger and freight transport.

Specialist Qualification for Car Salespeople

The compulsory modules of the qualification common to all are *general skills of vehicle and/or machinery salespeople; marketing, sales and customer services* and *training, co-operation and supervisory skills*. The compulsory modules of the competence area in vehicle and/or machinery sales are *vehicle and/or machinery trade* and *vehicle and/or machinery technology*. The compulsory modules of the competence area in sales of parts and accessories are *stock monitoring and control* and *vehicle and/or machinery technology, technical advice and cost estimates*. In addition, it is also possible to take the *entrepreneurship* module.

Candidates must either possess the vocational competence required for the Further Qualification for Car Salespeople or for Parts Salespeople, or equivalent skills and knowledge. They must know how to diversely utilise the latest technology in their work. They must understand the significance of occupational health and safety, ergonomics and environmental protection as factors influencing business operations and profitability. They must be familiar with the quality system used in their business enterprise and know how to develop their own operations and those of their unit accordingly. They must be familiar with customer-oriented marketing as well as with the marketing-related tasks of car and parts salespeople. They must be capable of planning sales campaigns, attracting new customers and recognising the needs of specific customer groups. They must command the tasks related to sales planning and reporting and be capable of putting together the necessary documentation. They must be able to handle demanding situations with customers and authorities independently. They must also be able to manage the most common customer service, sales and negotiation situations in one foreign language. They must understand the significance of managing people as a differentiator for the organisation in terms of competition and must actively promote co-operation within the business enterprise. They must know how to plan, implement and assess orientation and workplace instruction activities. They must be capable of participating in the preparation of their unit's staff development plan. They must be familiar with the principles of labour legislation as well as with national and local labour market procedures and collective agreements. They must know how to interpret and analyse the balance sheet, profit and loss statement and financial key ratios of their organisation. They must be familiar with different funding alternatives as well as with legislation related to the standards of equipment in vehicles and/or machinery. In addition, they must command the skills and knowledge of their chosen competence area.

Those who have completed the qualification may work either in vehicle or industrial machinery sales or in after-sales services in assignments requiring specialised competence in the field.

Specialist Qualification for Supervisors in Vehicle Technology

The compulsory modules of the qualification are *management and staff development, customer services and marketing of repair shop services, planning and organisation of work* and *economic activities*. One of the following optional modules must also be taken: *in-service training, project competence, technical expertise*. In addition, it is also possible to take the *entrepreneurship* module.

Candidates must be familiar with general management principles, be capable of encouraging staff in their supervisory work and promote co-operation within their organisation. They must recognise the occupational capabilities and development needs of staff operating in their area

of responsibility and know how to set objectives for their working group. In their supervisory work, they must take account of risks to products and staff as well as occupational health and safety, safety and environmental regulations concerning repair shop operations. They must be familiar with labour legislation and the core content of the collective agreement for the repair shop industry as well as with employer and employee rights and obligations. They must be familiar with the general marketing methods, trade legislation and contractual terms and practices in repair shop services. They must possess personal sales and customer service skills and they must know how to use customer feedback to develop operations. They must be capable of assessing their own work performance and drawing up their own objective and development plans. They must know how to use the business enterprise's control and information systems and to draw up different documents and reports. They must command the structure of their unit's work processes, know how to plan and supervise operations and utilise resources as required. They must be familiar with factors influencing the profitability of the repair shop and know how to price services profitably. They must be capable of participating in the preparation of budgets for their area of responsibility and understand profit and loss statements. They must know how to draw up investment plans and participate in the preparation of purchases. They must possess communication and negotiation skills and also be able to manage communication and technical information needed at work in a foreign language. In addition, they must command the skills and knowledge of their chosen optional module.

Those who have completed the qualification may work in different supervisory positions within the organisations of motor vehicle repair shops.

Specialist Qualification for Vehicle Body Mechanics

The common modules of the qualification are *general skills of specialist vehicle body mechanics, measurements and straightening in demanding multiple damage repairs to bodies and frames, quality and environmental responsibility* and *body shop operations*. In addition, it is also possible to select the separate *entrepreneurship* module.

Candidates must understand the principles of business operations and profitability. They must command customer service and be capable of co-operation with different departments. They must command mathematics, chemistry and physics skills as required in their occupation. They must be able to acquire key information required in their work assignments from commonly used sources, including texts in English. They must be familiar with repair terms and conditions, the Consumer Protection Act and the basics of information technology. They must know how to prepare written work orders and cost estimates, even in more demanding cases. They must be familiar with the loss adjustment and compensation procedures of insurance companies and must be able to act accordingly. They must be able to plan their own work and work according to their plan.

Candidates must know how to use various measuring devices and techniques when assessing damage. They must be familiar with different types of straightening equipment and the measuring techniques and devices used for this purpose. They must know how to determine the progress of damage in structures and establish the extent of damage as a whole. They must be able to identify the parts to be replaced and straightened.

Candidates must be able to take manufacturers' instructions into account. They must know how to repair vehicles with difficult multiple damages and choose appropriate repair methods

and equipment for the job. They must be able to take account of the limitations related to heat treatment of different materials. They must know how to bond glass and metal units. They must know how to repair plastic parts used in vehicles. They must be able to carry out their work to a high quality standard and in a profitable manner. They must be familiar with occupational health and safety regulations and instructions as well as environmental protection and waste management regulations.

Candidates must be able to act appropriately in development, supervision and guidance assignments relating to work processes. They must be familiar with the occupational requirements of vehicle repair shop work assignments. They must be familiar with potential applications of various straightening and measuring systems. They must be able to function as experts in repair shop planning in co-operation with other experts. They must know how to prepare vehicle repair shop machinery, equipment and tool plans.

Those taking the optional entrepreneurship module must be able to assess their own entrepreneurial potential and possess important information that is required for setting up in business.

Those who have completed the qualification may work in vehicle body repair assignments and in related supervision, workplace instruction and organisation assignments. They may also work as entrepreneurs in the field.

Specialist Qualification for Vehicle Painters

The common modules of the qualification are *general skills of specialist vehicle painters, tinting and colour design, materials technology, quality and environmental responsibility* and *vehicle paint shop operations*. In addition, it is also possible to take the separate *entrepreneurship* module.

Candidates must understand the principles of business operations and profitability. They must command customer service and be capable of co-operation with different departments. They must command mathematics, chemistry and physics skills as required in their occupation. They must be able to acquire key information required in their work assignments from commonly used sources, including texts in English. They must be familiar with repair terms and conditions, the Consumer Protection Act and the basics of information technology. They must know how to prepare written work orders and cost estimates, even in more demanding cases. They must be familiar with the loss adjustment and compensation procedures of insurance companies and must be able to act accordingly. They must be able to plan their own work and work according to their plan.

Candidates must know how to tint all vehicle paints based on modern technology, irrespective of binder bases or multi-coat systems. They must know how to produce a shade by mixing paints without instructions and formulae. They must be aware of the effects of different types of mixing paints. They must know how to design and make demanding stripings, letterings and design pictures to create stylistically immaculate wholes. They must know how to properly create colour schemes for demanding special painting of passenger cars and utility vehicles.

Candidates must be able to plan and properly implement painting structures for utility vehicles and passenger cars irrespective of the combinations of base materials. They must understand the significance of the optimum strengths of paint films. They must be able to plan the economically optimum working sequence for multicolour painting tasks of utility vehicles. They must be able to calculate the consumption of materials correctly and know how to price

their work properly. They must be familiar with the compatibility, repaintability properties, equivalences and service and storage lives of materials used in passenger cars and utility vehicles. They must be familiar with the basics of refinishing in vehicle painting.

Candidates must be able to act appropriately in development, supervision and guidance assignments relating to work processes. They must be familiar with the occupational requirements of vehicle paint shop work assignments. They must be familiar with potential applications of straightening and measuring systems. They must be able to function as experts in vehicle paint shop planning in co-operation with other experts. They must know how to prepare vehicle paint shop machinery, equipment and tool plans.

Those taking the optional entrepreneurship module must be able to assess their own entrepreneurial potential and command key information required for setting up in business.

Those who have completed the qualification may work in vehicle painting assignments and in related workplace instruction, supervision and organisation assignments in vehicle paint shops, repair shops and factories.

Specialist Qualification for Vehicle Mechanics

The common module of the qualification is *general vehicle mechanic skills*. The compulsory modules in the competence area in passenger car technology are *brakes, steering systems, chassis and stability control systems; power transmission; service and repair of engines and liquid fuel systems and electrical engineering and electronics*. The compulsory modules of the competence area in lorry and bus technology are *brakes, steering and suspension systems; service and repair of engines and power transmission lines; superstructures and electrical engineering and electronics*. In addition, it is also possible to take the *entrepreneurship* module.

Candidates must know how to exploit the latest technologies diversely in their work. They must understand the significance of occupational health and safety, ergonomics and environmental protection as factors influencing the productivity of business enterprises. They must be able to develop their own operations and those of their unit in accordance with the quality objectives of their organisation. They must be capable of functioning as team leaders and in-service trainers. They must also be able to manage the most common customer service, sales and negotiation situations and information acquisition in one foreign language. They must be familiar with the spare parts systems at their workplace and command the basics of repair technology, repair terms and conditions and the basics of the Consumer Protection Act. In their work, they must know how to apply the key principles of business economics and be familiar with cost and profit formation.

Candidates must know how to determine and repair defective brakes and steering systems as well as suspension systems or chassis and stability control systems. They must be able to determine the mechanical condition of engines and perform complete engine overhauls (excluding machining tasks). They must understand the basics of diesel technology and be familiar with the operations of electronic steering systems and sensor technology. They must know how to perform troubleshooting and repair tasks on mechanical liquid fuel systems or power transmission lines. They must know how to carry out installation, testing and adjustment tasks on commonly used electrical and electronic systems, accessories of devices and their components, as well as their troubleshooting and repair tasks, according to manufacturers' instructions. They must be familiar with the operations of the electrical and electronic systems and

equipment of the most common passenger cars or lorries and buses and know how to carry out their inspection, servicing and repair tasks.

Those who have completed the qualification may work in repair and servicing assignments with passenger cars or lorries and buses that require specialised competence.

Specialist Qualification in Cargo Handling

The three compulsory modules of the qualification are *planning and implementation of cargo handling, management and cost-awareness*. One of the following optional modules must also be taken: *forwarding, foreign language, business security, entrepreneurship*.

Candidates must be familiar with various means of transport, cargoes, cargo handling methods and regulations governing the operations. They must be able to plan, draw up and implement loading plans that are realistic in terms of technology and schedule and make changes to these with a variety of warning times. They must select the lifting and transfer equipment that is suitable for each task. They must be able to apply logistics models in cargo handling operations and in the planning and management of the information that controls these operations. They must be familiar with the operating principles of forwarding so as to be able to work in collaboration with forwarders. In their work, they must act in accordance with occupational health and safety principles, legislation and guidelines, as required by the quality system and taking environmental protection obligations into account. They must be able to set objectives for their subordinates and to define the indicators for these. Their actions as superiors and in teams must be encouraging and their communication must be clear. They must be familiar with the operating procedures and structures of port operations and understand the connections between the basic transactions of business economics and the operations of the business enterprise, and their own role in its profit formation. They must be able to interpret the main aspects of their enterprise's financial statements and balance sheets. They must also be able to carry out their duties in English and be capable of drawing up documentation using word-processing and spreadsheet software. In addition, they must command the skills and knowledge of their chosen optional module.

Those who have completed the qualification are equipped for supervisory cargo handling assignments.

OTHER EDUCATION IN TECHNOLOGY, COMMUNICATIONS AND TRANSPORT

VOCATIONAL QUALIFICATIONS

- Vocational Qualification in Safety and Security
- Vocational Qualification in Technical Design
- Vocational Qualification in Watchmaking and Micromechanics

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification for Chimneysweeps
- Further Qualification in Interior Design
- Further Qualification for Locksmiths
- Further Qualification in Maintenance
- Further Qualification in Rolling Stock Maintenance
- Further Qualification for Security Guards
- Further Qualification in Stonecutting
- Further Qualification in Waste and Recycling Management

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification for Chimneysweeps
- Specialist Qualification in Interior Design
- Specialist Qualification for Locksmiths
- Specialist Qualification in Maintenance
- Specialist Qualification in Product Development
- Specialist Qualification for Security Officers
- Specialist Qualification in Technology

Vocational Qualification in Technical Design

The compulsory module of the qualification is *basic skills in technical design*. One or two of the following competence areas must be selected: *construction engineering; heating, plumbing and ventilation engineering; electrical engineering; mechanical engineering*. Candidates who have chosen one competence area must also take three of the following optional modules: *element and steel structures; community development and construction; renovation; spatial design; plant design; automation; CAD/CAM technology; publishing technology; multimedia and information technology; 3D modelling*.

Candidates must be able to draw up layouts, sections and elevations of a small building and/or heating, plumbing and ventilation systems and/or electrical drawings of a fairly small site and/or simple mechanical engineering and metalwork product drawings on the basis of drafts and instructions and using the main information acquisition channels and information systems. They must be familiar with customer and consumer rights and obligations involved in design and associated documentation.

Candidates must be able to work in accordance with quality systems. They must possess the skills required to use constantly developing information and communications technology to acquire information and for interactive communication. In addition to drawing and small-scale design, they must also command office tasks. They must be able to carry out their work in both national languages and one foreign language.

Those who have completed the qualification possess extensive skills to work as assistants in planning offices specialising in construction engineering, electrical engineering, mechanical engineering or heating, plumbing and ventilation engineering or as independent entrepreneurs in the sector.

Vocational Qualification in Safety and Security

The compulsory module of the qualification is *basic safety and security skills*. One or two of the following specialisation modules must also be taken: *guard and service functions, rescue services and environmental safety, safety and security protection*. Those who have chosen one specialisation module must take three and those who have chosen two specialisation modules must take one of the following optional modules: *management of threatening situations, international activities, data security, building maintenance technology, logistical safety and security and installation of security systems*. The qualification title is Security Officer.

Candidates must be familiar with the main features of official organisations related to order, safety and security, their tasks, operating methods and safety and security co-operation between different organisations as well as with the extent of the powers of different authorities. They must be familiar with the principles of the essential legislation and business life and comply with legislation related to the safety and security field. In practical work, they must be able to observe the different sectors of the safety and security of business enterprises and make the necessary reports on any shortcomings. They must be aware of the operating principles applied in cases of accidents, dangerous situations and damage affecting business safety and security as well as those applied to prevent crime. They must be capable of anticipating threatening situations, intervening in problematic situations and using their own interaction skills to influence the progress of different situations. They must know how to apply the basics of using force and self-defence in changing situations and use the correct level of action to cope with the degree of threat. They must command the most common first aid situations in their work. They must act in accordance with the principles of internal and external customer service in their work. In customer service situations, they must be able to manage fluently in one national language and reasonably well in one foreign language. They must possess the necessary capabilities to use information and communications technologies to communicate and acquire information. In addition, they must command the skills and knowledge of their chosen optional modules.

Candidates are required to take the basic security guard course and the basic security officer course in compliance with the regulations of the Ministry of the Interior. In addition, they are required to take the official fitness tests measuring aerobic endurance and muscle tone.

Those who have completed the qualification possess extensive basic skills to work in different areas within the safety and security sector.

Vocational Qualification in Watchmaking and Micromechanics

The compulsory modules common to both competence areas of the qualification are *technical skills, mechanical timepieces and instruments* and *electronic timepieces and instruments*. The compulsory modules of the competence area in watchmaking (Watchmaker) are *repairs to small timepieces, product knowledge and customer service* and *clock-making*. Depending on their scopes, 1–2 of the

following optional modules must be taken: *repairs to antique timepieces, repairs to electronic timepieces* and *gemmology and jewellery*. The compulsory modules of the competence area in micromechanics (Micromechanic) are *materials into products, electronics* and *making precision products*. Depending on their scopes, 1–2 of the following optional modules must also be taken: *product development, repairs to antique timepieces, repairs to electronic timepieces* and *gemmology and jewellery*.

Candidates must be able to make the tools and pieces needed in the work of watchmakers and micromechanics with the required dimensional accuracy and to use the measuring implements and methods necessary in precision work. They must be able to determine defects in mechanical and electronic timepieces and other devices and to repair them. They must use materials economically and handle chemical substances safely and in accordance with regulations. They must possess basic business skills and knowledge.

Candidates taking the competence area in watchmaking must possess good know-how concerning the characteristics of different types of timepieces and their repairs and basic knowledge of jewellery repairs, silverware and engravings. They must be able to carry out manual repairs of timepieces, measuring equipment and similar precision instruments that call for considerable precision and to make parts for them.

Candidates taking the competence area in micromechanics must be able to make mechanical or electronic devices. They must be capable of participating in design and product development work related to products, working methods and implements. They must be able to carry out precision mechanics assembly, servicing and repair tasks that call for good manual skills and care.

Those who have completed the qualification are equipped to work in a variety of assignments in the clock, watch and jewellery sectors and within the electronics and instrument industries.

Further Qualification for Chimneysweeps

The modules of the qualification are *sweeping and servicing of hearths and flues, cleaning of ventilation systems, safety monitoring at properties* and *customer service and chimney-sweeping business operations*.

Candidates must possess good basic knowledge of fire prevention, economical use of energy and environmental protection. They must know how to sweep hearths and flues efficiently, properly and tidily. They must be familiar with legislation, instructions and recommendations concerning their field. In particular, they must be well versed in factors influencing fire safety of hearths and chimneys.

They must be able to observe servicing needs at different sites, be familiar with different repair methods and be able to perform servicing tasks. They must be able to advise and guide their customers on use, servicing and design related to combustion, hearths and flues. They must be familiar with the structures and equipment of ventilation systems and command common cleaning methods. They must recognise typical malfunctions in ventilation systems and know how to service such systems. They must be familiar with the most important factors influencing fire safety and recognise defects and risks. They must possess basic customer service and marketing skills.

Those who have completed the qualification may work as chimneysweeps. Their assignments include sweeping hearths and flues, cleaning exhaust air ducts and checking fire safety

and the condition of personal security equipment. In addition, chimneysweeps attend to tasks relating to improvement and monitoring of indoor air quality at properties. Their tasks also include guiding and advising customers.

Further Qualification in Interior Design

The requirements are identical to those of the equivalent qualification in Crafts and Design.

Further Qualification for Locksmiths

The common modules of the qualification are *safety and security standards and guidelines, security services and entrepreneurship* and *structural protection*. In addition, two of the following modules must also be taken: *video surveillance systems, alarm systems* and *access control systems*. In addition to these, candidates may also take the *entrepreneurship* and *installation of electrical equipment* modules.

Locksmiths are security officers referred to in the Private Security Services Act (282/2002), whose locking and system installations are security assignments that require police certification. Functioning in the field's occupations as well as the practical work assignments needed to acquire vocational skills require a security officer identity card.

Candidates must be thoroughly acquainted with the business enterprise's business idea and operations and with its main co-operation partners and suppliers and must be able to make use of these for acquiring information. They must command customer service. They must know how to assess a customer's individual security needs and present different opportunities and options in security services within their own operating area to their customers. They must be familiar with and understand the most recent acts, other statutes and regulations governing their field.

Candidates must command structural protection. They must be familiar with tools and materials and attend to occupational safety issues. They must know how to use measuring devices and be familiar with the basics of electrical engineering. In addition, they are required to have valid identity cards covering security work, hot work and occupational safety. They must be familiar with the intended uses of different types of mechanical locks and locking devices and electromechanical locks and be able to select the correct locks and fittings in accordance with the requirements of each specific application.

Candidates must be familiar with the operations of the most common turning, fire and overhead door and gate mechanisms and know how to install and service these according to manufacturer's instructions. They must be familiar with the principles of busbar technology. They must know how to install and service busbars and know the types of other systems that can be connected to busbars.

Candidates must be familiar with key equipment (camera and lens types, time-lapse recorders, various recording devices) and graphical symbols relating to video surveillance. They must be familiar with graphical symbols relating to alarm systems and equipment and with different types of alarm control equipment and their classifications. They must be familiar with and be able to identify the most common devices relating to access control systems and general graphical symbols relating to access control technology. They must also be familiar with

different types of readers and scanners. They must know how to design a simple system related to the above-mentioned control equipment and prepare the necessary documentation.

Those taking the entrepreneurship module must be aware of what becoming and functioning as an entrepreneur entails. Those who have completed the Further Qualification for Locksmiths to an acceptable standard, including the installation of electrical equipment module as part of it, and who have subsequently acquired one year of work experience in this kind of electrical work, are deemed to possess sufficient vocational skills to independently carry out such electrical work involving individual groups of electrical equipment or systems (Decree 28/2003 of the Ministry of Trade and Industry).

Those who have completed the qualification may work for safety, security and locksmith enterprises or as independent entrepreneurs.

Further Qualification in Maintenance

The qualification comprises the following common modules: *maintenance operations, maintenance information management, customer processes and occupational health and safety*. In addition, five of the following modules must also be chosen: *basics of automation maintenance for electricians and mechanics; programming of automation equipment; measuring transducers and actuators and installation and cabling work; troubleshooting automation systems; automation systems; automation electronics installation technology and its applications; basics of electrical maintenance for automation assemblers and mechanics; connection and replacement of electrical machinery and equipment; winding of electrical machinery; electrical installations for processes; electrical drives; troubleshooting electrical equipment; installations in properties; electrical engineering systems in properties; basics of mechanical maintenance for electricians and automation assemblers; lubrication maintenance; hydraulics; pneumatics; proportional and servo technology in hydraulics; proportional and servo technology in pneumatics; welding; production of parts; installation and maintenance of process equipment; power transmission; bearing applications; corrosion prevention; basics of condition monitoring for electricians, automation assemblers and mechanics; vibration measurements and interpretation of results; use of NDT in condition monitoring; acceptance inspection; machinery condition monitoring by means of lubrication analysis; thermography; condition monitoring based on process control; sensory condition monitoring and electrical measurements in condition monitoring*. In addition, it is also possible to take the *entrepreneurship* module.

Candidates may also choose one optional module from another Further or Specialist Qualification (in machinery and metal technology or electrical engineering, for example), which complements their vocational competence. This may not, however, be a module measuring basic skills or focusing on a previously chosen area.

Candidates must command general maintenance functions, necessary information management and occupational health and safety requirements in the field. They must be familiar with maintenance assignments in their chosen systems: building maintenance technology, automation and electrical systems, hydraulics and pneumatics and/or mechanics. They must command maintenance, troubleshooting, installations and connections. They must know how to interpret the necessary drawings and document any changes made. They must command the basics of automation, electrical installations and mechanical condition monitoring.

Those who have completed the qualification may work in the process industry, in power production, in the public sector and in service companies. The work assignments involve the supervision, servicing, installation and repair of machinery and equipment in and closely related to processes.

Further Qualification in Rolling Stock Maintenance

The common module of the qualification is *general skills in railway rolling stock maintenance*. In addition, candidates must choose two modules from section 1 and four modules from section 2, or one module from section 1 and five modules from section 2. Section 1 (rolling stock): *electric locomotives, diesel locomotives, electric multiple units, diesel multiple units, passenger coaches, freight wagons and railway construction and maintenance machinery*. Section 2 (subsystems): *tilting systems, automatic train control equipment, diesel engines, electric motors, control and information systems (info systems), door control systems, bogie systems, brake systems, pneumatic systems, hydraulic systems, power control systems, heating and air-conditioning systems, gearing and power transmission, wheel set machining, wheel sets, measuring instruments on railway construction and maintenance machinery, basics of electrical engineering for instructed persons, electrical fault location and Training Programme for Private Rail Safety Workers*. Candidates may only take either *basics of electrical engineering for instructed persons* or *electrical fault location*. Within section 2, candidates may also choose one optional module from another Further or Specialist Qualification (in machinery and metal technology or electrical engineering, for example), which complements their vocational competence. Such a module may not, however, focus on basic skills or on a previously chosen area.

In addition, candidates may select the *entrepreneurship* module.

Candidates must be familiar with different types of railway rolling stock and know the roles and applications of these. They must understand maintenance as a whole and know how to function in a customer-focused manner. They must be able to act safely, responsibly and co-operatively. They must be familiar with electrical and fire safety regulations and know how to act accordingly.

Depending on their chosen modules, candidates must be familiar with specific railway vehicles and the control systems and other functions of these. They must command stock-specific maintenance operations and the relevant maintenance system. They must be able to seek information from guidance documents, including manuals, spare parts catalogues and technical documents. They must possess sufficient language skills to interpret guidance documents. They must know how to assess faults and carry out minor repairs, servicing operations and general overhauls. They must know how to draw up work-related documents as required. They must be able to read diagrams and drawings. They must know how to carry out measurements and tests of equipment and systems relevant to their own area of assignments and be able to interpret measuring results. They must know how to carry out preventive maintenance.

Those who have chosen the Training Programme for Private Rail Safety Workers must command shunting operations on private rails, action in exceptional situations, communications and the drive and operational technology of rolling stock.

Those who have completed the qualification may work in railway rolling stock inspection, maintenance and repair assignments in railway depots and workshops.

Further Qualification for Security Guards

The common modules of the qualification are *basics of security guard work, basic security guard course, guard operations in the safety and security sector, rescue operations, security technology and threat management*. In addition, at least two of the following modules must also be taken: *reception services, local guard services, district guard services and emergency operations, store security, order maintenance, transport security, personal security, security checks, fire-fighting and entrepreneurship*.

Candidates must have basic knowledge of guard services, security business operations, a guard's duties and their implementation as well as of a guard's rights and responsibilities. They must be familiar with legislation relating to guard duties as required. They must understand the nature of their occupation in terms of customer service. They must be aware of risks related to guard work. They must be familiar with self-protection and emergency first aid. They must be able to perceive the integrated whole made up of different technical security and communications systems, structural safety and personal surveillance, along with different forms of guard work. They must be familiar with the principles of drawing up documents and reporting as required in their work. They must be familiar with the guard equipment and weapons required in their work. They must know how to take appropriate action in accident, problem and threat situations.

Candidates must be aware of the duties of security stewards, certification of security stewards, security stewards' identification marks and powers, appointment of security stewards based on legislation and order maintenance at various events. They must hold a valid certificate for the hot work course and the Finnish Red Cross first aid course or equivalent training. Candidates must be familiar with official organisations related to guard work and their core tasks, their operating areas mainly involved in business security and threats arising from society's change processes.

Candidates must have basic knowledge of rescue operations and precautions for states of emergency. They must be familiar with aspects relevant in terms of fire safety, such as the basics of different types of compartmentation and regulations governing emergency exits, exit lighting and signage. They must know how to take appropriate action, minimising any damage, in fire prevention, possible events of fire and prevention of subsequent damage. Candidates must be familiar with labelling of dangerous substances and the properties of the most common dangerous substances. They must be familiar with the principles of proper transport and storage of dangerous substances as well as threats and environmental risks relating to transport and storage.

Candidates must possess basic knowledge of the structural safety of properties, such as fences, gates, fire doors, lighting and locking systems. They must be familiar with different control and surveillance methods relating to burglar alarm systems. They must understand the characteristics of surveillance of parameters, building envelopes, facilities and specific sites and their most common implementation methods. They must possess good interaction skills. They must be familiar with the basics of verbal and non-verbal communication and know how to make use of these in their work. They must understand the basics of human behaviour. They must be familiar with the effects of different environments on the nature of operations both in terms of the situation and legislation.

In addition, candidates must command specialist skills and knowledge of their chosen modules.

Those who have completed the qualification may work as guards employed by security companies and private or public sector organisations or as independent entrepreneurs.

Further Qualification in Stonecutting

The common module of the qualification is *basic skills in stonecutting*. The specialisation areas are quarrying, processing and installation. In quarrying, two of the following modules must be chosen: *drilling, charging, extraction sawing* and *wedging*. In processing, three of the following

modules must be chosen: *sawing, grinding and polishing, special machining techniques, bush-hammering and flaming, cleaving, milling, chiselling and sand blasting and machine tool programming*. In installation, one of the following modules must be chosen: *installation of building stones and installation of landscaping stones*.

Candidates must be familiar with the stonecutting field and understand their own work and specialisation area as part of the stonecutting field as a whole. They must be familiar with the most common Finnish rock types and minerals and be acquainted with the properties and uses of different types of rock. They must know how to use and service machinery and tools related to work performance.

Candidates must be able to read drawings and take measurements as required in their chosen optional module(s). They must also possess basic knowledge of occupational safety, quality systems used in the field and the requirements of environmental protection set for the field. Candidates must be able to work in an independent, customer-focused and co-operative manner.

In addition, those who have completed the qualification command the vocational skills required in the qualification modules that they have chosen from their specialisation area.

Those who have completed the qualification may work in stone quarrying, processing or installation assignments, depending on their specialisation area.

Further Qualification in Waste and Recycling Management

The compulsory modules of the qualification are *business knowledge and operational systems, customer service, occupational health and safety and basics of environmental protection*. One or two of the following specialisation modules must be taken: *waste and recycling management at properties, transport operations in waste and recycling management, recovery of materials, operations in waste treatment areas, composting, hazardous waste management, sink and sewer management, environmental administration and supervision of legality, high-pressure water work*. Those who have only selected one specialisation module must also take one of the following optional modules: *management of material flows in waste and recycling management, advice in waste and recycling management, information management and bookkeeping in waste and recycling management, safety adviser, ADR driving authorisation, transport planning and organisation, management of environmental risks, sewage disposal in sparsely populated areas, restoration of contaminated land areas, industrial vacuum cleaning, operation controller and entrepreneurship*.

Candidates must be familiar with the products and services of their own business enterprise and the significance of these to customers. They must be able to explain and understand the significance of operational systems.

Candidates must be aware of the most fundamental environmental, health and safety effects arising from use of the equipment, raw materials and supplies in production within their operating area and of the relevant environmental and safety responsibilities.

Candidates must be familiar with the foundations of the customer-focused business process and with the significance of a business idea, values, objectives and policies in business activities. They must be aware of the principles of communication and their own role in communication. They must be able to advise customers in environmental, health and safety activities and to notify local inhabitants of possibly hazardous situations or accidents. They must be familiar with the foundations of legislation, official activities and regulations governing the field. They must know how to collect and record information using the equipment and methods available.

They must be able to assess work processes and to make proposals for developing working methods, quality and economy.

Candidates must recognise occupational safety risks and hazardous situations and know how to choose protective equipment and protection methods appropriate for these. They must be familiar with the requirements of waste management and waste transport operations, the reuse opportunities of waste fractions, recovery systems and equipment, transport methods as well as the basics of waste treatment areas. They must command the basics of environmental protection, including environmental changes and ensuing problems. They must be aware of environmental protection methods and know what materials efficiency means.

In addition, candidates must command the skills and knowledge of their chosen specialisation and optional modules. Those who have chosen the specialisation module in waste and recycling management at properties must, among other things, know how to prepare a waste management plan for a property and command information measures, advice, monitoring and reporting related to waste management. They must be able to identify different types of hazardous waste and requirements for treating such waste.

Candidates who have chosen the transport operations in waste and recycling management module must know how to load waste and transport it on a refuse-collection vehicle. They are required to hold the class C1 or class C driving licence. They must know how to use electronic registration and weighing systems and fill in documents relating to waste transport.

Those who have chosen the recovery of materials module must, among other things, be able to identify, classify, sort and treat incoming materials. They must be familiar with the principles of the raw material cycle.

Those who have chosen the operations in waste treatment areas module must command waste decomposition processes and know how to place wastes on a waste disposal site, among other things. They must be familiar with the ground and surface structures of waste disposal sites and the technical principles of other structures. Depending on their choice, they must command weighing functions or field functions.

Those who have chosen the specialisation module in composting must, among other things, know how to make compost. They must be familiar with the key chemical, physical and biological principles relating to composting and understand the significance of key indicators.

Those who have chosen the hazardous waste management module must, among other things, be familiar with the significance of sampling and know how to take the required samples from waste and analyse these. They must know how to sort, pack, mark and store waste.

Those who have chosen the specialisation module in sink and sewer management must be able to choose transport equipment according to specific materials, among other things. They must be familiar with the functions and correct operation of equipment.

Those who have chosen the environmental administration and supervision of legality module must, among other things, be familiar with the operations of the environmental administration, the judicial system and the police.

Those who have chosen the high-pressure water work module must know and be familiar with equipment and accessories used at work. They must know how to determine the pressure and flow being used and be aware of their effects.

In addition, candidates must consolidate their competence in their chosen qualification modules.

Those who have completed the qualification may undertake assignments related to waste management.

Specialist Qualification for Chimneysweeps

The modules of the qualification are *sweeping and servicing of heating systems*, *cleaning and servicing of air-conditioning systems* and *customer service and management of a chimney-sweeping business*.

Candidates must possess good basic knowledge of fire prevention, economical use of energy and environmental protection. They must be familiar with agreements made and rules agreed on the labour market and must comply with these in their organisation.

They must possess extensive knowledge of heating technology: combustion, fuels, heating equipment and the energy economy associated with these. They must be able to sweep hearths, boilers and flues efficiently, properly and tidily. They must be able to advise and guide their customers on use, servicing and design related to combustion and hearths. They must be able to function as experts in their own operating field at fire inspections and preliminary building inspections. They must be familiar with the operations, structures and equipment of ventilation systems and command cleaning and balancing methods and air-conditioning measurements and adjustments. They must recognise typical malfunctions in ventilation systems and know how to service these systems. They must be familiar with the most important factors influencing fire safety and recognise faults, defects and risks. They must be able to assess the level of tightness of air-conditioning equipment and ducts and, where necessary, check the tightness with a pressure test.

They must command customer service, be able to market the services that they offer and know how to develop their services to meet demand. They must possess good skills and knowledge in planning the operations of a chimney-sweeping business and in business operations and management.

Those who have completed the qualification may work as master chimneysweeps, attending to hearths, flues and ventilation and air-conditioning systems at properties. Their assignments include sweeping hearths and flues, cleaning exhaust air ducts and checking fire safety and the condition of personal security equipment. In addition, they work in adjustment, measuring and design assignments relating to heating equipment and ventilation. Their tasks also include guiding and advising customers, business development and maintaining customer relationships.

Further Qualification in Interior Design

The requirements are identical to those of the equivalent qualification in Crafts and Design.

Specialist Qualification for Locksmiths

The qualification comprises the following common modules: *safety and security standards and guidelines*, which must be taken unless the candidate has completed the Further Qualification for Locksmiths; *structural protection*, which must be taken unless the candidate has completed the Further Qualification for Locksmiths; *management of property-related crime risks*; *security protection*; *project management*; *supervision*, *customer service and communication*. In addition to these, it is also possible to take the *entrepreneurship* and *installation of electrical equipment* modules.

Specialist locksmiths are security officers referred to in the Private Security Services Act (282/2002), whose locking and system installations are security assignments that require police

certification. Functioning in the field's occupations as well as the practical work assignments needed to acquire vocational skills require a security officer identity card.

Candidates must be familiar with and able to apply safety and security standards and guidelines for their occupational field in their work. They must command structural protection. They must know how to use measuring devices and be familiar with the basics of electrical engineering. They are required to take the Locksmith Examination organised by the Federation of Finnish Insurance Companies (SVK), unless they already hold a valid certificate. In addition, they are required to have valid identity cards covering security work, hot work and occupational safety.

Candidates must be familiar with the intended uses of different types of mechanical locks and locking devices and electromechanical locks and be able to select the correct locks and fittings in accordance with the requirements of each specific application. They must be familiar with the operations of the most common turning, fire and overhead door and gate mechanisms and know how to install and service these according to manufacturer's instructions. They must be familiar with the principles of busbar technology. They must know how to install and service busbars and know the types of other systems that can be connected to busbars. They must be able to survey and assess property-related crime risks and be able to choose the correct risk management methods and protection techniques.

Candidates must be able to assess a customer's security needs and suggest a system that is suitable in terms of costs and that meets the customer's needs. They must be capable of drawing up a tender for a security contract, holding commercial negotiations, managing and implementing the security contract, handing the contracted job off to the customer, providing user instructions, taking responsibility for obligations under warranty and retrospectively calculating the profitability of the contract.

Candidates must be familiar with the business idea, values, objectives and policies of the business enterprise that they represent and their own area of responsibility within the organisation. Those taking the entrepreneurship module must be aware of what entrepreneurship entails.

Those who have completed the Specialist Qualification for Locksmiths to an acceptable standard, including the installation of electrical equipment module as part of it, and who have subsequently acquired one year of work experience in this kind of electrical work, are deemed to possess sufficient vocational skills to independently carry out such electrical work involving individual groups of electrical equipment or systems (Decree 28/2003 of the Ministry of Trade and Industry).

Those who have completed the qualification may work for security and locksmith enterprises or as independent entrepreneurs.

Specialist Qualification in Maintenance

In order to complete the qualification, candidates must take at least three of the following modules: *development of independent initiative, profitability and cost management, operational and working community development* and *development of managerial skills*. Eight optional modules must also be taken. In addition, it is also possible to take the *entrepreneurship* module. Candidates may specialise in automation, electrical or mechanical maintenance. Depending on their specialisation area, candidates are required to command the following skills and knowledge, among other things:

Candidates must know how to install, repair and program automation equipment. They must know how to operate the most common measuring equipment and actuators. They must know

how to troubleshoot and repair defects in automation equipment and auxiliary devices. They must know how to connect automation equipment and make simple additions and changes to applications.

Candidates must command the basics of electrical maintenance. They must know how to take the most common maintenance measurements and be capable of pinpointing and repairing defects. They must command connections, replacements and winding of electrical machinery and equipment, install electrical process equipment and command servicing, repair and modification tasks related to the maintenance of electrical installations. They must know how to install the most common electric drives, pinpoint defects and carry out commissioning installations, measurements and inspections. They must be aware of the most common principles of troubleshooting electrical faults.

Candidates must be familiar with the basics of mechanical maintenance. They must be able to carry out lubrication maintenance tasks and install, service and repair hydraulic and pneumatic systems. They must command field, site and repair welding tasks using ordinary welding techniques and know how to carry out oxygen-cutting tasks required in relation to these. They must be able to make simple parts using routine machining techniques. They must know how to install, service and maintain pumps, valves, pipe systems and other process equipment as well as power transmission equipment and bearing arrangements. They must be able to determine appropriate condition monitoring techniques for different types of equipment and take simple basic measurements. They must be familiar with the basics of corrosion prevention.

Candidates must know how to price services or products and calculate margins and costs as required in the field of technology.

Specialist Qualification in Product Development

The common modules of the qualification are *preparation for product development*, *command of methods supporting product development* and *a product development project*. In addition to these, candidates are free to incorporate the *entrepreneurship* module as part of their qualification.

Candidates must be familiar with the most common concepts related to the product development process. They must be able to assess the initial situation and set objectives for product development work. They must know how analyses are prepared and what they deal with and they must identify analyses relating to their own field of activity. They must be able to assess needs for and carry out analyses.

Candidates must be familiar with the most important systematic methods of product development in their own occupational field. They must be able to make use of information acquisition methods. They must be familiar with different brainstorming methods and know how to brainstorm and assess the ideas generated. They must command plans guiding product development work. They must be familiar with the analysis tools being applied and the system of intellectual property rights.

Candidates taking the product development project module must be able to prepare a feasible project plan in a way suitable for their own operating environment. They must pay attention to customers and understand the significance of experts to product development and pursue the best possible outcome with their assistance, taking note of product protection. They must know how to carry out measures relating to protecting a product. They must be able to monitor and defend a patent, trademark, registered design, utility model or other such right. They must be

able to take account of the different phases of producing a service or product in product development. They must understand commercialisation of a product or service as being part of product development. They must command economic activities and understand the importance of the exploitability of results. They must understand that discontinuation is part of the product development process. They must be able to contribute to continuation of product development work, even if they personally may have to give it up. They must understand the significance of reporting to product development. They must know how to report on and disseminate the results of their product development project.

Those who have completed the qualification may work for companies as product developers.

Specialist Qualification for Security Officers

The common modules required for completion of the qualification are *security planning* and *security legislation*. In addition, three of the following modules must also be selected: *basics of security business operations and guard work*, *security management*, *security technology*, *information security*, *international security operations* and *entrepreneurship*.

Candidates must be familiar with the principles of security planning and security systems at different levels. They must also be familiar with the requirements and content of statutory security plans. They must be familiar with the different areas of business security. They must be capable of acquiring information related to security planning, preparing draft security plans and guiding organisations or businesses in issues involved in such planning.

Candidates must be familiar with legislation regulating the private security sector and other legislation relevant to the field in terms of assignments related to the private security sector. They must also be familiar with legislation relating to supervisory and managerial assignments, such as legislation governing occupational health and safety and working hours and the basics of legislation concerning employment contracts and personal safety. They must be able to apply legislation to practical work assignments and different problem situations. They must also be able to justify their solutions in relation to the above-mentioned situations.

Other competence required in the qualification is determined according to the modules chosen by each candidate. All work assignments require good co-operation, customer service and communication skills and knowledge of statutes and regulations governing the field.

Based on section 20 of the Private Security Services Act (282/2002), a person may be approved as a manager of a security company, when he or she has completed the *security legislation* and *basics of security business operations and guard work* modules and one optional module as part of the Specialist Qualification for Security Officers and, in addition, fulfils any other requirements set by legislation.

Those who have completed the qualification may work in security assignments in business enterprises and in managerial, supervisory, planning and sales assignments in security companies.

Specialist Qualification in Technology

The four compulsory modules of the qualification are *organisation and supervision of work*, *profitability and cost management*, *development of staff and the working community* and *operational planning*. One of the following optional modules must also be taken: *sales and customer management* (commercial option),

development of products, processes and working environments (production option), *working on export/import projects* (international option). In connection with compulsory and optional modules, candidates must demonstrate competence in the application of mathematics, in the application of information technology and in languages and either in the application of physics or in the application of chemistry.

Candidates are required to hold a certificate of a further qualification in a technical field or possess equivalent know-how. They must understand the reasons for the behaviour of their colleagues and subordinates and be able to have a motivating influence on their attitudes and objectives. They must be able to analyse themselves as superiors and colleagues and to draw up their own development plan. They must be capable of systematic problem-solving and decision-making and communicate clearly. They must understand the connections between basic national economic and commercial events and their own sector and business enterprise and be able to apply the principles of profitable operations when planning, developing and guiding their own work and that of their working group. They must be able to take part in staff recruitment, orientation and development and command labour legislation to the extent that is sufficient for their tasks. They must be familiar with the planning practices at their workplace and be capable of making, implementing and, where necessary, altering plans that extend over different periods of time. In addition, they must command the skills and knowledge of their chosen optional module.

Those who have completed the qualification may work in positions requiring extensive technological and economic knowledge and managerial skills, such as supervisors and workplace instructors, team and project leaders, production planners and quality controllers.

NATURAL RESOURCES AND THE ENVIRONMENT

AGRICULTURE

VOCATIONAL QUALIFICATION

- Vocational Qualification in Agriculture

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification for Agricultural Mechanics
- Further Qualification For Apiarists
- Further Qualification in Artificial Insemination
- Further Qualification for Farmers
- Further Qualification for Farriers
- Further Qualification for Horse Trainers
- Further Qualification in Livestock Farming
- Further Qualification in Organic Crop and Livestock Production
- Further Qualification for Riding Instructors

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification in Fur Farming
- Specialist Qualification for Head Grooms
- Specialist Qualification for Riding Instructors
- Specialist Qualification in Rural Water Management

Vocational Qualification in Agriculture

The compulsory module common to all competence areas of the qualification is *basic skills in rural entrepreneurship*.

The compulsory module of the Study Programme in Agriculture (Rural Entrepreneur) is *general agricultural skills*. The compulsory module of the Study Programme in Horse Care and Management (Groom, Riding Instructor) is *horse management*. In addition to the *horse management* module, candidates specialising in riding instruction must also take the compulsory *riding instruction* module. The compulsory modules of the Study Programme in Fur Farming (Fur Farmer) are *fur farming skills* and *functioning in fur production*. The compulsory module of the Study Programme in Animal Husbandry (Animal Attendant) is *knowledge and care of animals*. The compulsory modules of the Study Programme in Agricultural Technology (Rural Entrepreneur) are *basics of agricultural technology* and *agricultural and earthmoving technology* and *production management technology*.

In addition to the common and programme-specific compulsory modules, candidates must choose 70 study weeks of optional modules included in their competence area.

These optional modules are as follows: 1. *entrepreneurship in rural environment*; 2. *general agricultural skills*; 3. *cultivation of arable crops*; 4. *use, maintenance and repair of agricultural machinery*; 5. *metalwork in agriculture*; 6. *provision of environmental services*; 7. *livestock farming*; 8. *further processing of*

agricultural products; 9. entrepreneurship in rural tourism; 10. service entrepreneurship; 11. specialised crop cultivation/special crop group; 12. production of organic products; 13. specialised livestock farming/line of production; 14. breeding of small animals; 15. horse care; 16. utilisation of farm forests; 17. construction in an agricultural holding; 18. utilisation of automation in agriculture; 19. utilisation of production technology; 20. horse management; 21. training of a riding horse; 22. training and racing a trotter; 23. basic farrier skills; 24. farriery; 25. basic equipment production and repair skills; 26. equipment production and repairs; 27. metalwork and woodwork; 28. repairs to and maintenance of horse-drawn vehicles; 29. horse boarding services; 30. horse breeding and stables maintenance; 31. harness horse training and horse driving; 32. use of horses for tourism; 33. riding instruction; 34. basic fur farming skills; 35. functioning in fur production; 36. production of fur animal feed; 37. waste management at a fur farm; 38. construction and technology in fur production; 39. other farm animals; 40. other optional studies.

Candidates must have an overview of the prerequisites for practising agriculture and the opportunities for rural entrepreneurship. They must be familiar with the organisations related to agriculture and rural entrepreneurship and their functions. They must be familiar with factors influencing the growth of plants as well as with the basics of specific animal husbandry and behaviour. They must know how to use and service the machinery and equipment of their occupational field. They must be capable of practising production activities in a cost-aware and profitable manner, taking responsibility for the environment. They must know how to use information technology for planning, monitoring, information acquisition and communication. In certain situations in their occupation, they must make ecological, ethical and aesthetic decisions.

Candidates who have chosen the Study Programme in Agriculture (Rural Entrepreneur) must know how to tend to domestic animals so as to promote their well-being and implement feeding and breeding according to animal husbandry plans. They must know how to plan and carry out crop cultivation tasks. They must be capable of functioning as part of the quality chain of production and in co-operation with other people.

Those who have chosen the Study Programme in Animal Husbandry (Animal Attendant) must know how to tend to domestic animals so as to promote their well-being. They must know how to implement feeding and breeding according to animal husbandry plans. They must know how to use livestock farming machinery and equipment. They must know how to use information technology to monitor and plan livestock production. They must be able to follow developments in their field and function as part of the quality chain of livestock production and in co-operation with other people. They must be able to function in a cost-aware and environmentally responsible manner. Depending on their chosen options, they must know how to establish enterprises providing farm relief services or to function as municipal farm relief workers or in assignments at pet boarding establishments and stray animal refuges, domestic animal parks, pet shops, farm tourism enterprises and the agricultural supply and fodder trade.

Candidates who have chosen the Study Programme in Agricultural Technology (Rural Entrepreneur) must know how to organise their work assignments relating to production technology in accordance with occupational safety regulations. They must know how to use information technology to plan and monitor their production. They must follow developments in their field, form quality chains for production and co-operate with other people. They must know how to function in a cost-aware and environmentally responsible manner and to assess the profitability of operations. They must know how to assess those needs of their field that they aim to satisfy through their business ideas. Depending on their chosen options, they must

be able to function as rural entrepreneurs, agricultural machinery contractors, repair shop entrepreneurs, in the agricultural supply trade and in different service assignments intended for agricultural holdings.

Candidates who have chosen the Study Programme in Horse Care and Management must understand horse management as part of the agricultural field and of Finnish rural culture as well as the international significance of Finnish horse management. They must be familiar with different equestrian sports, the opportunities for using horses for working purposes, the types of horses used as well as with the main features of equipment and horse-drawn vehicles. Grooms must be able to tend to and feed horses. They must be able to distinguish between healthy and sick horses and know how to administer first aid. They must know how to organise farriery at the stables and attend to the administration of equipment at the stables.

Riding Instructors must be able to organise stables operations, horse care and stables work. They must know how to teach different types of customers to ride and about horse care, applying basic pedagogical skills in their instruction work. Their riding skills must be equivalent to the national L competition level. They must know how to break in a young horse and maintain the training level of a riding-school horse.

Candidates who have chosen the Study Programme in Fur Farming (Fur Farmer) must know how to act in accordance with acts and regulations governing fur production and to take the general prerequisites for fur farming into account. They must know how to tend to and handle fur animals according to their specific needs as well as to apply the principles of breeding to practical work.

Those who have completed the qualification possess the basic skills and knowledge for different agricultural work assignments as well as specialised competence in accordance with their competence area and chosen modules.

Further Qualification for Agricultural Mechanics

The compulsory module of the qualification is *entrepreneurship*. The optional modules are *tractor maintenance and repair*, *maintenance and repair of agricultural machinery* and *maintenance and repair of livestock farming machinery*. One of these must be taken.

Those who have completed the qualification are competent in the installation, maintenance and repair of agricultural and livestock farming machinery. Their role is to ensure that agricultural or livestock farming machinery functions faultlessly using preventive maintenance, to repair broken machinery, perform repairs under warranty and equipment installations and attend to the acquisition and sales of accessories and spare parts. They mostly work as brand-specific agents and convey customer feedback received on machinery to the manufacturers or importers.

Those who have completed the qualification are responsible for machinery maintenance services in technical and economic terms. Their work focuses on tractor maintenance and repairs and installations, maintenance, adjustments and repair of agricultural machinery connected to tractors and of combine harvesters and livestock farming machinery. The work requires command of the principles of electronic data transfer and the use of quality systems and competence in advanced technologies.

Those who have completed the qualification must command electrical, hydraulic, mechanical and pneumatic solutions used in machinery, maintenance required by machinery and related customer advice. They must know how to test and repair broken machinery and estimate costs

arising from repair and maintenance measures as required in good customer service. They must choose operating methods that do not cause environmental burdens. They must also command basic business processes and act so as to ensure operational profitability. They must be aware of the principles of customer-focused service activities. Co-operation skills and the ability to maintain good relations between agricultural mechanics operating in neighbouring districts are also emphasised. The ability to respond to developments in the field is also required, which calls for those who have completed the qualification to show an interest in learning new things.

Those who have completed the qualification may work as entrepreneurs with brand-specific maintenance contracts and service responsibility in a certain geographic area, as agricultural or livestock farming machinery entrepreneurs or as employees.

Further Qualification For Apiarists

The common modules of the qualification are *beekeeping, treatment of apiculture products and marketing and entrepreneurship*.

Those who have completed the qualification understand the biological system of a honeybee colony as a whole. They identify main bee diseases and pests and command prevention and control measures. They are familiar with the most important honey plants and know how to select apiary locations. They know how to plan and implement apicultural work during different seasons.

Those who have completed the qualification know how to maintain and increase their honeybee population through queen breeding and using nuclei. They are familiar with different types of hive components and command their use and transfer techniques.

Those who have completed the qualification know how to treat, pack and market honey and other apiculture products. They command the safe use and servicing of production facilities and fittings, machinery and equipment.

Those who have completed the qualification are able to function economically and efficiently, taking environmental considerations into account. They are capable of recognising customer needs and of acting in a customer-focused manner. They know how to maintain good and uniform quality of products. They are familiar with statutes and regulations and act accordingly.

Those who have completed the qualification are familiar with the prerequisites of entrepreneurship and command basic business processes. They are able to co-operate with other people and use information technology in their work.

Those who have completed the qualification may function as full- or part-time apiarists or as apiary employees.

Further Qualification in Artificial Insemination

The compulsory modules of the qualification are *knowledge of livestock farming, artificial insemination and customer service*. In addition, one of the following modules must also be selected: *fertility advice, entrepreneurship or embryo transfers*.

Candidates must be aware of the production requirements in cattle and pig farming of the most important factors influencing profitability and of the principles of environmental protection and quality systems in livestock farming. They must command the basics of the care of cattle

and pigs, the most common diseases and their effects on fertility and the basics of genetics and they must be aware of practical cattle and pig breeding work. They must be familiar with structural assessments of livestock and the procurement procedures and progeny evaluation of individuals used in artificial insemination. They must be familiar with statutes and ethical considerations relating to breeding, artificial insemination and protection of animals.

Candidates must be familiar with animal behaviour and must know how to handle animals safely. They must be familiar with the reproductive physiology of livestock. They must be able to assess the phase of the oestrous cycle and recognise any possible reproductive disorders. They must be able to artificially inseminate a cow and a pig and to test them to see if they are pregnant. They must know how to use and maintain the equipment used for artificial insemination. They must be familiar with the principles of hygiene and must know how to apply these to artificial insemination work. They must be service-oriented, co-operative and able to communicate and they must possess the necessary language skills.

Those taking the fertility advice module must know how to assess the fertility of an entire herd. They must know how to act as fertility advisers and guide livestock tenders in oestrus monitoring. They must know how to instruct farmers in issues relating to breeding and feeding.

Those taking the entrepreneurship module must be able to assess the opportunities provided by their occupational field and their own potential for entrepreneurship. They must be aware of the financial, productional and intellectual resources that entrepreneurship requires, understand the most important financial principles of business activities and must be familiar with essential legislation relating to business activities.

Those taking the embryo transfers module must be familiar with the national breeding programme and understand the significance of embryo transfers as part of cattle breeding activities. They must know the principles of embryo production and freezing and the requirements of hygiene in transferring embryos and they must know how to handle fresh and frozen embryos. They must know how to use and maintain equipment used for embryo transfers, to transfer embryos and to act in accordance with statutes and regulations governing embryo transfers.

Completion of this qualification provides the required qualifications for artificial insemination of bovines and pigs. Those who have completed the qualification may also work as artificial inseminators responsible for embryo transfers, provided that they have taken the embryo transfers module as part of their qualification. Artificial inseminators work almost exclusively for artificial insemination co-operatives.

Further Qualification for Farmers

The modules of the qualification are *farm management*, *farm development* and *crop cultivation*, in which candidates may select the line of production.

Candidates must be able to produce crop products of high quality economically, ecologically and by means of suitable cultivation techniques. They must be familiar with agricultural policy, labour and other legislation governing the field and with the effects of various forms of financial aid on business operations. They must be acquainted with the biological basics of crop cultivation and also take other agricultural and forestry production into account in their work. They must be able to assess the profitability of the production of different crops and to plan matters related to cultivation, mechanisation, construction, tasks and finances. They must be able to deal with the tilling, seeding, plant protection, harvesting and harvest-handling tasks involved in

crop cultivation and be capable of using, servicing and repairing farm machinery, equipment and buildings. They must be able to deal with sales, marketing and acquisitions. They must be familiar with taxation, bookkeeping, budgeting, financing methods, their own social security and their obligations as employers. They must be able to obtain information and services, take notes, make use of information technology in their work and also to communicate in a language other than their mother tongue. They must be capable of analysing a farm and its operations and of drawing up short- and long-term plans. They must understand the significance of primary production and of product quality in the food production chain and be able to work in various co-operation and development projects.

Those who have completed the qualification are competent in crop cultivation and may work as entrepreneurs or as employed farm managers or workers.

Further Qualification for Farriers

The common modules of the qualification are *knowledge of horses, knowledge and handling of shoeing materials, shoeing a horse* and *horse management and business activities*.

Candidates must be familiar with the foundations of horse well-being and care and different functions of horses. They must know how to handle different types of horses. They must be familiar with the details of horse leg and hoof anatomy and know how to assess a horse's leg structure, hoof shapes and movements and recognise a limp. They must be familiar with leg and hoof injuries and diseases of adult horses and foals and with the principles of their treatment. They must be familiar with the basics of general horse health and veterinary care, know how to administer first aid and advise customers on prevention of diseases and injuries.

Candidates must be familiar with and know how to handle materials used in shoeing and hoof repair. They must know how to make a basic horseshoe and produce special shoes. They must know how to carry out basic, special and corrective shoeing. They must know how to fit foals with therapeutic shoes. They must know how to make the most common farriery tools. They must be able to take considerations relating to ergonomics, occupational safety and animal and environmental protection into account in their actions.

Candidates must understand the prerequisites of entrepreneurship in horse care and management. They must be familiar with the process of setting up a business enterprise and business administration. They must command the basics of business financial planning. They must be able to market their own vocational skills and work as instructors of students in the field. They must know how to act in a customer-focused and co-operative manner and to solve problem situations. They must have performance skills and know how to use information technology in their work and acquire the latest knowledge of the field.

Those who have completed the qualification may work as farriers either as employees or as independent entrepreneurs.

Further Qualification for Horse Trainers

The qualification comprises the following common modules: *knowledge of horse management and entrepreneurship*. In addition, one of the following modules must also be selected: *trotter training, equestrian horse training* and *equine massage*.

Candidates must understand the biological foundations of a horse's well-being. They must know how to design a stables and training environment. They must be able to identify the most common horse diseases and know how to take appropriate action in cases of illness. They must be familiar with different types of feed and feeding options and know how to plan feeding regimes for sports horses.

Candidates must command hoof care and be familiar with different shoeing alternatives and their potential uses. They must be familiar with the principles of medication and doping regulations. They must know how to accustom foals to being handled. They must be familiar with the activities of organisations operating in the field. They must be able to make use of research information and information technology in their work.

Candidates must be familiar with the general requirements of business operations. They must be able to plan the operations and finances of an equine business enterprise. They must take safety and environmental considerations into account in their actions.

In addition, **trotter trainers** must be familiar with different training methods and know how to apply these. They must be familiar with injuries that may befall sports horses, know how to treat these and use veterinary services where necessary. They must know how to race trotters. They must command the principles and measures of trotter breeding.

Equestrian horse trainers must know how to train foals to become competition horses. They must be able to ride at national Advanced A competition level or drive teams of horses at national Advanced competition level (both equivalent to the international M level). They must command the principles and measures of equestrian horse breeding.

Equine masseurs and masseuses must command the techniques and working methods used in equine massage. They must be aware of horses' state of health and be able to co-operate with veterinarians. They must know how to comply with legislation governing the field.

Those who have completed the qualification may work as full- or part-time trotter trainers, equestrian horse trainers or equine masseurs or masseuses either as independent entrepreneurs or employees.

Further Qualification in Livestock Farming

Candidates may specialise as livestock entrepreneurs, agricultural relief workers or livestock hoof care providers.

Livestock entrepreneurs: The compulsory module of the qualification is *farm management and development*. Two of the following optional modules must be taken: *dairy farming, pig farming, poultry farming, specialised beef production, sheep farming and feed production*.

Farm relief workers: The compulsory module of the qualification is *farm relief work*. In addition, two of the following optional modules must be taken: *dairy farming, pig farming, poultry farming, specialised beef production, sheep farming, horse management, feed production or entrepreneurship*.

Livestock hoof care providers: The compulsory modules of the qualification are *entrepreneurship* and *livestock hoof care*.

Livestock entrepreneurs are professionals in livestock production, planning, organising and managing their livestock farm operations and food production in accordance with effective criteria and the farm's own quality system. They must be familiar with pricing and support policies influencing profitability as well as with European Union measures. Maintenance and improvement of profitability require them to continuously develop their own activities, monitor

costs, optimise farm and livestock sizes, make use of new technologies and develop reciprocal co-operation between agricultural enterprises.

Livestock entrepreneurs produce high-quality livestock products in their chosen line of production, using production techniques that combine economical, ethical and environmentally friendly aspects. They must command the principles of plant and livestock production and practical livestock and feed production work. As entrepreneurs, they must be familiar with statutes, regulations and agreements governing their field and be aware of the importance of confidential co-operation. Supervision of workers and division of tasks require even-handedness and focus on occupational safety.

Farm relief workers carry out daily livestock farming work and other farm management tasks at relief service farms when the farmer is on leave. They must be aware of their activities as promoters of the well-being of agricultural entrepreneurs and understand the customer service nature of their work and the different service needs and practices of agricultural enterprises. In addition, they must act as required for different forms of farm relief services.

Farm relief work places emphasis on animal-handling skills and command of food hygiene, livestock feeding and health care. Farm relief workers function in accordance with instructions provided by supervisory personnel at the local farm relief unit and the individual livestock entrepreneurs, complying with the requirements of occupational safety. They perform their work independently, taking responsibility for the well-being of farm animals, normal continuation of production and the use and working order of machinery and equipment. In addition, they must be interested in maintaining and developing their vocational skills so as to also be capable of working at those customer farms that use the latest technologies, regardless of their production lines.

Livestock hoof care work places emphasis on knowledge of the basics of functional hoof care and command of practical hoof care tasks. As entrepreneurs, livestock hoof care providers must also command the basics of entrepreneurship.

Those who have completed the qualification may work as independent livestock entrepreneurs or in regular employment as farm relief workers or animal attendants. They may also work as agricultural relief service entrepreneurs. Livestock hoof care providers are self-employed.

Further Qualification in Organic Crop and Livestock Production

The compulsory modules of the qualification are *farm management*, *soil management* and *processing and marketing of organic products*. One of the following optional modules must also be taken: *organic cultivation* and *organic livestock production*.

Candidates must be familiar with farm and soil ecosystems and understand farm management as a whole. They must be able to draw up an annual plan for a specific farm and to plan the crop rotation, fertilisation and chains of work assignments. They must be familiar with the objectives, terms and conditions, and the monitoring systems of organic production and with the approved fertilisers and fertilisation methods. They must be capable of producing arable cultivation and livestock products organically. They must be able to assess the soil's growing capacity based on the results of a fertility study and by means of spade diagnosis. They must be familiar with the statutes and regulations concerning the processing of and trade in organic products and with the potential for processing organic products. They must be able to assure the quality of products and to handle and pack them properly. They must be able to assess the preconditions for

entrepreneurship, business ideas and profitability. They must understand the significance of a customer-focused approach, marketing and co-operation. They must be able to take notes related to production, finances and taxation, draw up a tax declaration and a budget, arrange bookkeeping, interpret financial statements and apply for subsidies for organic production. They must be able to make use of information technology and also to communicate in a language other than their mother tongue. In addition, they must command the skills and knowledge of their chosen optional module.

Those who have completed the qualification may work as organic farmers in either crop cultivation or livestock production.

Further Qualification for Riding Instructors

The compulsory modules of the qualification are *equestrian skills, riding skills, riding instruction and entrepreneurship*.

Those who have completed the qualification are responsible for the operations of riding schools, think up school activities and evaluate their profitability. They know how to attend to the management of stables, to the well-being of horses and to equipment, taking animal protection and environmental factors into account. They are also responsible for breaking in horses and know how to choose horses suitable for use at riding schools. They are capable of functioning in supervisory assignments and as experts in horse care and management when planning riding centres and areas. They take safety considerations into account in their actions.

Those who have completed the qualification know how to devise and organise riding school operations and to teach riding skills to riders of different ages. They know how to teach haute école and showjumping at national L level as well as cross-country riding. They command different teaching methods and know how to draw up annual and class timetables for the riding school and are capable of assuming responsibility for their implementation either independently or together with other riding instructors. They are aware of their responsibilities in teaching riding and equestrian skills and are capable of developing new services related to the field as befitting the time. Their own riding skills must be at exemplary professional level and they must be able to co-operate with local riding clubs and other interested parties. They comply with traffic regulations in cross-country terrain, command the rules of Olympic equestrian sports, are familiar with other types of riding sports and can handle horses in compliance with the principles of good horsemanship.

Those who have completed the qualification are aware of the prerequisites and opportunities of entrepreneurship in the riding school business. They command the main principles concerning setting up a business, bookkeeping and taxation, are aware of the basics of business accounting and know how to draw up budgets. They are able to market riding school services and know how to use information technology and serve different types of customers. They are able to act in a friendly and customer-focused manner in different interactive situations, also using a language other than their mother tongue. They are familiar with the quality system and know how to develop business operations accordingly. They are aware of relevant legislation and know how to apply its provisions. They have internalised their responsibility as educators and promoters of physical exercise and as representatives of equestrian sports.

Those who have completed the qualification may work as entrepreneurs or for riding school enterprises as employees responsible for school operations.

Specialist Qualification in Fur Farming

The common modules of the qualification are *optimisation of feeding, fur animal production, promoting animal welfare* and *supervisory functions*. In addition, one of the following modules must be chosen: *business and marketing* or *entrepreneurship*.

Candidates must be familiar with the properties of raw ingredients used in feeding fur animals and know how to plan feed diets for different stages of production. They must know how to feed fur animals and be aware of the importance of quality control. They must treat animals appropriately and handle them in accordance with codes of conduct and ethics as well as provisions and instructions included in animal protection statutes.

Candidates must be familiar with the basics of assessing the well-being of fur animals bred at fur farms. They must know how to attend to animal welfare and prevention of disease. They must be able to identify the most common fur animal diseases and know how to take appropriate action in cases of illness. They must be familiar with and comply with legislation governing fur production. They must command fur farm breeding activities and be aware of factors influencing animal fertility and health and skin quality.

Candidates must take occupational safety and environmental protection considerations into account in their actions. They must be familiar with the latest technology and be able to assess its usefulness. They must be able to function as supervisors and instructors of students in the field and to develop and maintain a healthy working environment. They must know how to network, co-operate and use information technology in their work and also seek the information that they need.

In addition, those who have chosen the business and marketing module must be familiar with the prerequisites of entrepreneurship and command the basic business and marketing processes. They must know the rights and responsibilities of employers and employees. They must know how to manage and develop a business enterprise.

Those who have chosen the entrepreneurship module must be able to assess their own entrepreneurship and opportunities to set up a business. They must be aware of the basic skills, knowledge and principles related to entrepreneurship and setting up and running a business enterprise.

Those who have completed the qualification may either work as independent full- or part-time fur farmers or as farm employees.

Specialist Qualification for Head Grooms

The compulsory modules of the qualification are *horse care and training, horse health care, horse breeding, supervisory functions* and *entrepreneurship*.

Those who have completed the qualification understand the biological foundations of horse well-being. They know how to plan the stables environment and its operations and organise the use of paddocks, equestrian sports areas, fields and field shelters.

Those who have completed the qualification know how to feed horses and monitor the condition of individual horses. They are familiar with training and racing a horse. They command stables hygiene and horse health care. They are familiar with statutes governing horse health, diseases, drugs and the use and storage of drugs. They know how to prevent horse injuries and diseases and to administer first aid.

Those who have completed the qualification understand the significance of domestic horse breeding. They must be familiar with the Finnish breeding system and know how to make breeding choices and tend breeding horses and foals. They must know how to function as supervisors and workplace instructors and to maintain and develop a healthy working environment.

Those who have completed the qualification know the rights and responsibilities of employers and employees. They are familiar with the principles of business activities, service marketing and customer service. They are familiar with organisational activities in the field and are aware of statutes governing horse management.

Candidates are able to network and co-operate. They know how to acquire and make use of research information. They take safety and environmental considerations into account in their actions.

Those who have completed the qualification may work as head grooms at trotting or riding stables, stud farms and centres or within other business enterprises keeping horses, either as independent entrepreneurs or employees.

Specialist Qualification for Riding Instructors

The compulsory modules of the qualification are *equestrian skills, riding skills, riding instruction and training, supervisory functions* and *entrepreneurship*.

Those who have completed the qualification are able to function as head riding instructors at riding or training centres and take responsibility for the centre's operations and development. They know how to plan and implement horse care, veterinary medication, feeding and shoeing, using expert assistance as required. They know how to select appropriate recreational and competition horses and correct equipment for these. They know how to ride at national Advanced level.

Those who have completed the qualification are able to draw up customer-focused instruction and coaching plans. They know how to instruct or train a horse and rider up to national Advanced level. They are able to make use of their studies in education in riding instruction. They are familiar with statutes, regulations, the quality criteria of the Equestrian Federation of Finland and the safety guidelines of the Finnish Consumer Agency as applicable to their field. They know how to function as supervisors, managers and instructors for employees, on-the-job learners and apprentices and to monitor implementation of safety and environmental considerations and compliance with other regulations and guidelines.

Those who have completed the qualification know the rights and responsibilities of employers and employees. They are familiar with the principles of business activities, service marketing and customer service. They know how to network and co-operate and are also capable of functioning in occupational contexts in a language other than their mother tongue. They know how to function as experts and judges in the field. They know how to organise competitions and equestrian events and to act so as to promote the sport.

Those who have completed the qualification may work as independent entrepreneurs, riding instructors or horse trainers at riding or training centres or at educational institutions.

Specialist Qualification in Rural Water Management

The common modules of the qualification are *planning of subsurface field drainage*, *planning of basic drainage*, *planning of drainage water treatment* and *entrepreneurship and customer service*. In addition, one of the following optional modules must also be taken: *planning of water management in sparsely populated areas*, *planning of subsurface drainage for special sites* or *planning of irrigation systems*.

Those who have completed the qualification are specialised in planning, advisory services and work supervision in water management for business enterprises and other organisations and inhabitants in sparsely populated areas. Their work covers drainage, irrigation, waste water treatment and reduction of diffuse pollution. Qualification-holders work as experts and joint project organisers, who command different options and application methods in their occupational field. Where necessary, they may issue statements when the quality of construction is being monitored at various sites. Key aspects in practical operations include collection of site terrain information, in other words, transfer of data from the site to form the basis of plans and in order to prepare alternative solutions.

In addition to the client, those who have completed the qualification must also be able to negotiate with different authorities and financing bodies during the planning phase. During the project implementation phase, they must be familiar with issues relating to work quality and site supervision. In order to be able to function in their expert position, they must also know how to use field surveying technology and design software used in their field and command alternative solutions for individual sites, materials used in construction and the execution methods and quality requirements of work. Key requirements for success at work include knowledge and application of statutes and regulations as well as customer service and co-operation skills.

Those who have completed the qualification are mostly employed by various organisations, or they may be independent entrepreneurs. In rural advisory organisations, they commonly function as subsurface drainage planners, but they may also work in other limited planning, surveying or implementation assignments related to water management in private enterprises or other organisations.

HORTICULTURE

VOCATIONAL QUALIFICATION

- Vocational Qualification in Horticulture

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification in Arboriculture
- Further Qualification in Floristry
- Further Qualification in Landscape Gardening
- Further Qualification in Nursery Gardening
- Further Qualification in Wine Production

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification in Floristry
- Specialist Qualification in Landscape Gardening
- Specialist Qualification in Nursery Gardening

Vocational Qualification in Horticulture

The compulsory module common to all competence areas of the qualification is *basic horticultural skills*.

The compulsory modules of the competence area in horticulture are *greenhouse production*, *outdoor production* and *horticultural entrepreneurship*. Four of the optional modules listed below (marked H) must also be taken. The compulsory modules of the competence area in landscape industries are *landscape development*, *landscape maintenance* and *entrepreneurship in landscaping*. Four of the optional modules listed below (marked L) must also be taken. The compulsory modules of the competence area in floristry and horticultural business are *customer service in floristry and horticultural business*, *shopwork* and *entrepreneurship and marketing in floristry and horticultural business*. Depending on their scopes, three or four of the optional modules listed below (marked F) must also be taken.

The optional modules are *alternative production methods* (H, L, F), *command of cultivation technology* (H), *special plant production/special plant group* (H), *nursery production* (H, L, F), *cemetery landscaping* (L), *construction and maintenance of golf courses and sports fields* (L), *use of landscaping plants* (H, L, F), *grounds design* (L), *landscaping masonry* (L), *landscaping carpentry* (L), *maintenance of landscaping machinery and equipment* (L), *tree care* (L), *flower arrangements* (H, L), *florists' flower arrangement skills* (F), *decoration* (H, L, F), *fair and exhibition activities* (H, L, F), *decoration, lettering and drawing* (H, L, F), *product knowledge and guidance at a garden centre* (H, L, F), *interior plantscaping* (H, L, F).

The qualification title is Gardener.

Candidates who have chosen the competence area in horticulture must know how to cultivate crops and gardening plants in greenhouses and outdoors, exploiting information and cultivation technologies. They must know how to select cultivation methods and working techniques appropriate to the special requirements of different plants. They must know the Finnish and scientific names of the most popular cultivated plants in commercial terms. They must know how to prepare products for sale and sort, pack and label them. They must know how to use horticultural machinery and equipment and carry out basic servicing tasks.

Candidates who have chosen the competence area in landscape industries must be capable

of building green areas in accordance with planning documents. They must be familiar with the key properties of materials used in landscape development. They must know how to plan and carry out landscape maintenance tasks in accordance with the required standard of care. They must be able to use the Finnish and scientific names of plants in their work and in the acquisition of information. They must know how to choose and use machinery and equipment needed in landscaping tasks. They must know how to calculate costs of work, material and machinery and price contracted projects.

Candidates who have chosen the competence area in floristry and horticultural business must know how to present, sell and price floristry and horticultural products, supplies and services. They must be capable of advising customers on the selection of and care for cut flowers, pot plants and garden plants. They must know how to handle and care for products on sale, in particular living materials. They must be able to manage day-to-day shopwork independently. They must know how to make, maintain and pack the most common bouquets, wreaths and flower arrangements sold by florist shops.

Candidates must command basic horticultural work assignments and know how to work in an ecological, economical and customer-focused manner. They must be able to develop a business idea, draw up an action plan, start up a business enterprise, plan and market operations and monitor profitability. They must be able to express themselves orally and in writing and to use the key terminology of the field in both national languages and one foreign language. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification possess the skills for basic horticultural work and for work assignments in their chosen competence area. They may work as entrepreneurs or as employees in greenhouses and outdoor gardens, in assignments related to landscape development and maintenance as well as in florist shops and at garden centres.

Further Qualification in Arboriculture

The compulsory modules of the qualification are *cultivation and care of young trees, cultivation and care of mature trees, condition surveys of trees, tree removal, care of parks and scenic woods* and *entrepreneurship and customer service*. In addition, it is possible to take some of the following optional modules: *entrepreneurship, acquisition and production of propagating material, international silviculture* or *damage recognition and damage risk management*.

Candidates must identify the species of arborescent shrubs and trees most commonly used for landscaping in Finland and select trees appropriate for each specific location. They must be able to plan and implement the planting of arborescent plants, including finishing tasks, at different planting sites. They must know how to prepare and implement silvicultural programmes and repair root problems. They must be able to exploit and apply their knowledge of the biological properties of arborescent plants in silvicultural work, identify the most detrimental causes of damage and issue recommendations for action. They must be able to assess tree care needs, plan and implement restorative pruning tasks and draw up cost estimates for silvicultural measures.

Candidates must be able to assess the condition of trees and determine the value of growing trees. They must know how to use special techniques to plan and implement tree removal operations. They must know how to plan and implement landscaping sites so as to take account of environmental land use and diversity. They must be acquainted with the key concepts and principles of business activities and be familiar with the basics of customer service, acting in a

natural and appropriate manner in customer service situations.

Those who have completed the qualification may work in municipal units responsible for park management, for example, and in other organisations involved in urban woods management.

The requirements of the competence-based qualification are currently being prepared.

Further Qualification in Floristry

The compulsory modules of the qualification are *customer service and marketing* and *flower arrangements and interior decoration*. In addition, one of the following optional modules must be taken: *interior plantscaping* or *entrepreneurship*.

Candidates must be familiar with plants and other materials used in floristry. They must know how to make different types of flower arrangements, such as bouquets, table arrangements, wedding bouquets and wreaths. They must command flower arrangement techniques, the use of colour and form, and be familiar with the symbolic meanings and customs associated with arrangements. They must be able to design and implement decoration schemes suitable for different occasions and situations. Candidates must be capable of spatial perception and of making use of the opportunities provided by different spaces to create small-scale interior plantscaping schemes. When implementing these, they must be able to take account of the style and materials of the space. They must know how to tend indoor plants and prepare care instructions for these.

The competence of those who have completed the qualification is based on the role of craft stemming from knowledge of plants. It is put into practice in accordance with the principles of design and composition. Occupational challenges include product design and implementation in order for florist shops to be capable of providing specialist floristic competence, thus being able to successfully compete with flower sales outlets and specialist stores within other branches of commerce.

Those who have completed the qualification know how to produce, market, present, sell and price florist shop products and services. They are able to serve customers according to their needs and are also capable of functioning in a language other than their mother tongue. They know how to act in a natural and friendly manner in service situations and to resolve problems. They know how to use calligraphy techniques when lettering product materials and use florist shop machines and equipment and make use of information technology in their work. They take other people into account in their working community and know how to act economically and in accordance with statutes and regulations. They know how to employ safe working methods that are based on sustainable development. When functioning as entrepreneurs, they are aware of the key concepts relating to entrepreneurship and the relevant basic processes.

Those who have completed the qualification may work both as employees of florist shops and as independent entrepreneurs.

Further Qualification in Landscape Gardening

The qualification comprises five optional modules, three of which must be selected. The modules are *landscape construction*, *landscape maintenance*, *environmental construction*, *business activities* and *entrepreneurship*.

Candidates specialising in entrepreneurship may either include the *business activities* or

entrepreneurship module as part of their qualification. The former is intended for people already working as entrepreneurs and the latter for people such as employees who may consider becoming entrepreneurs.

Depending on their chosen qualification modules, candidates must understand the significance of landscaping as part of the community development sector as a whole. They must be familiar with maintenance classifications used in green areas. They must be familiar with materials used in landscape construction and maintenance. They must be familiar with the properties and habitat requirements of vegetation and plants used in green areas. They must know how to build vegetation areas in accordance with quality requirements.

Candidates must be familiar with the properties of soil in terms of environmental construction. They must command measuring tasks required in environmental construction. They must know how to build environmental structures in accordance with plans and quality requirements. They must know how to maintain green areas in accordance with maintenance classifications. They must command safe use of machinery, equipment and tools used in the field. They must know how to develop their own operations. They must be familiar with and comply with statutes and regulations relating to occupational safety, environmental issues and other operations in the field.

Candidates must know how to network and co-operate with professionals in other fields and use information technology in their work. They must be able to work in an efficient and cost-aware manner.

Candidates must be familiar with the prerequisites of entrepreneurship in their own field and command basic business and marketing processes.

Those who have completed the qualification may work as employees or independent entrepreneurs within the landscaping industry.

Further Qualification in Nursery Gardening

The common module of the qualification is *harvesting and further processing*. In addition, three of the following modules must also be chosen: *outdoor production*, *greenhouse production*, *organic production*, *product development and marketing* and either *business activities* or *entrepreneurship*.

Candidates must have a clear overview of nursery plants and the product range of nurseries as well as of cultivation work in their specialisation area. They must be able to competently perform cultivation work in their specialisation area. They must be able to assure preservation of quality throughout the product life cycle. They must be aware of technical storage solutions and know how to store products. They must know how to sort and pack products. They must know how to add value to products through further processing and product development.

Candidates must be familiar with the technical and financial prerequisites of plant production and relevant restrictions in general terms. They must be aware of directives, legislation and cross-compliance rules governing EU support schemes that affect production. They must know how to use and service machinery and equipment required in cultivation. They must be conscious of burdens on the environment and take these into account when planning their work, being able to avoid excessive environmental burdens in their work. They must be able to work in an efficient and cost-aware manner.

Candidates must be able to assess the quality of operations and production and develop these on the basis of customer feedback. They must know how to network and co-operate with professionals in other fields and use information technology in their work. They must be familiar with and comply with statutes and regulations relating to occupational safety, environmental issues and other operations in the field.

Candidates must be familiar with the prerequisites of entrepreneurship in their own field and command basic business and marketing processes. They must also be able to communicate in a language other than their mother tongue.

Those who have completed the qualification may work as employees or independent entrepreneurs within horticultural production.

Further Qualification in Wine Production

In the specialisation area for wine farmers, the qualification is made up of the following common modules: *production of fruit wines, production of other fruit-based alcoholic beverages, customer service and sales and business and marketing*. The common modules of the specialisation area for wine farm workers are: *production of fruit wines, production of other fruit-based alcoholic beverages and customer service, sales and marketing*. In addition, it is also possible to take the optional *entrepreneurship* module.

Candidates must be familiar with legislation governing production of alcoholic beverages. They must be aware of the requirements set for production facilities and equipment. They must be familiar with the raw ingredients of fruit wines and the significance of their quality. They must know how to carry out processing of raw ingredients hygienically and economically. They must know how to press juice from raw ingredients and transfer the wine must into the fermenter. They must be familiar with the theory of alcohol fermentation and be capable of controlling the fermentation process. They must know how to clarify, stabilise, mature and pack fruit wines. They must be familiar with the basics of sensory evaluation and know how to make use of these in production and product development.

Candidates must command the main phases included in the production processes of other fruit-based alcoholic beverages, i.e. cider, carbonated and fortified fruit wines, sparkling fruit wines and fruit liqueurs and distillates. They must know how to use and service the field's machinery, equipment and tools appropriately.

Candidates must be familiar with the product range of their farm wine enterprise and command customer service. They must comply with legislation governing the serving, retail and advertising of alcoholic beverages. They must know how to organise sales and marketing events and function as demonstrators at such events. They must take safety and environmental considerations into account in their actions.

In addition, wine farmers must be familiar with the prerequisites of entrepreneurship and command the basics of business and marketing. They must know how to manage their business, develop the business idea and assess the potential of developed products for success.

Wine farm workers must also be interested in product development and know how to introduce development ideas. They must be capable of acting in accordance with the enterprise's business idea and in an entrepreneurial manner.

Those who have completed the qualification may function as full- or part-time wine farmers or wine farm workers.

Specialist Qualification in Floristry

The common modules of the qualification are *flower arrangements*, *spatial composition* and *supervisory functions*. In addition, one of the following modules must be chosen: *business and marketing* or *entrepreneurship*.

Candidates must command the theories of design, composition, colour, flower arrangement and spatial composition and know how to apply these. They must be familiar with plant materials and know how to handle and use these according to each specific situation. They must know how to plan, implement and price work and services profitably.

Candidates must know how to use technical tools and supplies for flower arrangements and spatial composition and combine these with plant materials. They must know how to develop products, services, technical tools and supplies. They must command working methods and floristic craft and presentation techniques.

Candidates must know how to serve customers and create products according to customers' requests and ideas. They must take ergonomics, occupational safety and environmental considerations into account. They must know how to plan, organise and implement exhibitions and demonstrations.

Candidates must be able to work as supervisors and workplace instructors. They must know how to develop and maintain a healthy working environment. They must know the rights and responsibilities of employers and employees. They must know how to communicate, while also being capable of functioning in occupational contexts in a language other than their mother tongue. They must be co-operative, know how to network and use information technology in their work and also seek the information that they need.

In addition, those taking the business and marketing module must also command administrative tasks and financial planning involved in business activities. They must be able to market their own vocational skills and the business enterprise and its products. They must also know how to manage and develop the business enterprise.

Those taking the entrepreneurship module must be aware of the basic skills, knowledge and principles related to entrepreneurship and setting up and running a business enterprise. They must be able to assess their own entrepreneurship and opportunities to set up a business.

Those who have completed the qualification may work as employees or independent entrepreneurs within the floristry sector.

Specialist Qualification in Landscape Gardening

The five compulsory modules of the qualification are *entrepreneurship*, *landscape development*, *landscape maintenance*, *customer service and marketing* and *supervision of work and workplace instruction*.

Candidates must be able to use a business concept as a tool in business activities and be familiar with the legislation related to entrepreneurship and landscape contracting. They must be able to draw up action and development plans, budgets, investment plans and cash flow statements. They must be able to make use of information technology and the electronic media in their work. They must be familiar with the plants, materials, machinery and equipment used in landscape development and with the technical solutions of earth construction. They must also command the basic repairs of green areas, construction of street greenery and natural landscape

development. They must be able to deal with the maintenance of green areas and their plants, be acquainted with the landscape maintenance classification and be able to keep track of maintenance costs. They must be able to plan and implement customer-focused service operations, marketing communication, exhibitions and product presentations. They must also be able to tell customers about their work, products and services in a language other than their mother tongue. They must understand the significance of staff to profitable operations and be able to plan, organise and conduct work flexibly and economically. They must be familiar with the basics of occupational psychology and ergonomics and be acquainted with workplace instruction.

Those who have completed the qualification are competent in landscape production and may work as entrepreneurs or in managerial/supervisory positions related to the planning, development and maintenance of green areas.

Specialist Qualification in Nursery Gardening

The modules of the qualification are *entrepreneurship, nursery stock production, customer service and marketing* and *supervision of work and workplace instruction*.

Candidates must be familiar with the concept of a business idea and its significance to business activities and with the basics of entrepreneurship. They must be familiar with the legislation and regulations governing consumer protection and nursery stock production. They must know how to draw up a budget, make investment and financial calculations, assess profitability with the aid of key ratios and understand practices related to financial statements and taxation. They must be familiar with the key principles of the quality system and the practical implementation of certification. They must know how to acquire information and services and to make use of networking and information technology in their work. They must be able to price products, fit up a nursery shop and to manage its operations in a customer-focused manner. They must also be able to deal with customer service and foreign trade in a language other than their mother tongue. They must be familiar with the wholesale and retail trade in nursery stock production and with the distribution channels and logistics of nursery products.

Candidates must be able to identify nursery plants and be familiar with their characteristics and cultivation methods. They must know how to plan and carry out the propagation, further cultivation, harvesting, preparation for sale, storage and transportation of different plant groups. They must know how to use production facilities, equipment and machinery appropriately, taking environmental considerations into account. They must be familiar with labour and environmental legislation related to nursery production and with safety regulations.

Candidates must be familiar with employer and employee rights and obligations during and at the end of employment. They must know how to plan, organise and supervise assignments and be familiar with workplace instruction. They must be able to apply the basics of occupational psychology in their supervisory work and to act constructively in problem situations.

Those who have completed the qualification can work in managerial and supervisory positions in nursery stock production and as independent entrepreneurs.

FISHERY

VOCATIONAL QUALIFICATION

- Vocational Qualification in Fishery

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification in Fish Processing
- Further Qualification in Fish Farming
- Further Qualification for Fishing Guides

Vocational Qualification in Fishery

The compulsory modules of the qualification are *fish and fishing grounds, fishery, navigation, basic fishing skills, basic fish-processing skills, basic skills in aquaculture, fisheries management and entrepreneurship in fishery*. One of the following optional modules must also be taken: *commercial fishery (Fisher), fish-processing and fish trade (Fish Processor), aquaculture (Fish Farmer), fishing-related tourism (Fishing Instructor)*.

Candidates must know how to observe the workings of the aquatic ecosystem and to take, handle and fix samples for research purposes. They must positively identify all Finnish wild fish species and the most important fish and crayfish species used in aquaculture or fisheries management. They must be able to explain the main features of the effects of human actions on the state of waters, fish stocks and fishing activities as well as essential water and environmental protection measures. They must be capable of carrying out simple research functions and determinations and of producing statistics based on their observations. They must be aware of the status of fishery as an industry, its administration and different forms of financial aid. They must be familiar with the administration and control of fisheries as well as with essential legislation and permit procedures governing fisheries. They must possess the skills and knowledge required for safe navigation on water and ice.

Candidates must be familiar with fishing techniques and tackle and know how to use and service the machinery, equipment and tackle used in fishing. They must know how to handle catches and fresh fish hygienically and in compliance with food legislation. They must be familiar with the most common fresh fish products and the nutritional significance of fish. They must be capable of using fish-processing machinery and equipment with guidance. They must be familiar with the biotope requirements of aquacultured species, lines of production and production facilities and must know how to tend fish in an aquacultural environment.

Candidates must know how to extract roe from fish, inseminate it and tend it during hatching when supervised. They must know how to slaughter fish and prepare it for trade in accordance with hygiene and quality requirements. They must be familiar with the organisations responsible for fisheries management and planning as well as for the regulation of fishing and they must be capable of assisting with fisheries management and with improvement measures in water areas. They must be familiar with the production, transportation and transplantation of fingerlings and young crayfish.

Candidates must know how to draw up business plans and budgets for a fishery enterprise according to their specialisation area. They must command customer service in different situations.

Depending on their chosen optional module, they must either be familiar with the special requirements for the sale of fish products or they must possess specialised knowledge of activity services.

Those who have completed the qualification possess extensive skills to function as skilled employees or entrepreneurs in the field of fishing, fish-processing, aquaculture, fish trade or fish-related tourism.

Further Qualification in Fish Processing

The modules of the qualification are *knowledge of fishery, fish processing and customer service and sales*.

Candidates must be familiar with the basics of fishing, fish farming, the fish-processing industry and fish trade and with the legislation governing the field and the effects of the EU on Finnish fishery. They must be familiar with the most common fish, crustaceans and molluscs suitable for processing and with the quantity, availability and price factors of natural and farmed fish. They must be familiar with the usual catching methods and with the principles of fish and crayfish farming. They must be familiar with the premises, basic machinery and equipment required for handling and processing fresh fish and with the most common fish species used as raw material, their structure and vital functions. They must be familiar with the nutritional properties of fish, the effects of storage and processing methods on nutrients and with the factors resulting in the spoiling of fish. They must command the receipt, size and quality classification, cooling and storage of fish. They must be able to scale, gut and fillet fish and extract, sort and store roe. They must be familiar with the most common fish-processing methods and the manufacturing principle of canned foods. They must be acquainted with the basics and profitability of business operations and with the purchasing, sales and distribution channels of the fish trade. They must be able to use information technology in their work and also to deal with sales transactions and customer service in a language other than their mother tongue.

Those who have completed the qualification may work in demanding assignments in fish handling and processing and in the fish trade as employees or self-employed people.

Further Qualification in Fish Farming

The modules of the qualification are *entrepreneurship, fish farming and sales and marketing*.

Candidates must be familiar with the concepts of a business idea and with the main features of legislation, accounting and taxation principles related to entrepreneurship and with the main points of an entrepreneur's liabilities, obligations and rights. They must be aware of the significance of the quality system and be familiar with the effects of legislation and official activities related to fish farming on a company's operation. They must know how to draw up production, investment and financing plans and to use different forms of financing and financial aid available for fish production.

Candidates must be aware of different fish farming methods and the watering system as well as of the requirements on the quantity and quality of water in different farming conditions. They must take the requirements on plant hygiene and fish treatment into account in their work. They must be familiar with feeding methods and be able to calculate the feed requirements in various breeding stages and conditions. They must command the different stages and tasks

involved in the spawn production process and know how to produce fry by means of farming both in a plant and using natural nutrition. They must know how to slaughter fish, prepare it for sale and transport it according to the relevant statutes. They must be able to make use of information technology in their work.

Candidates must be aware of the significance of marketing and marketing co-operation in fish production and be able to use a variety of marketing methods. They must be familiar with consumer needs and national and foreign distribution channels. They must know how to plan sales and monitor their implementation. They must realise the significance of sales promotion, personal saleswork and customer service to business operations. They must be able to keep abreast of trends in the sector, acquire information and services and communicate in a language other than their mother tongue.

Those who have completed the qualification may work as employees or supervisors in a business enterprise or plant producing edible fish or fry and as self-employed people.

Further Qualification for Fishing Guides

The common modules of the qualification are *knowledge of operating environments and operational culture, product design and marketing, guide activities and entrepreneurship*.

Those who have completed the qualification know the living habits and habitat requirements of common game fish. They are familiar with factors influencing the degree of difficulty in catching these species. They recognise the most important organisms and natural phenomena in their operating environment and carry out fisheries management work. They make use of their knowledge of local culture and history when guiding customers. They take the needs of people representing different cultures into account in their actions.

Those who have completed the qualification know how to plan and organise fishing events with related complementary services. They know how to draw up and implement marketing plans and carry out targeted marketing efforts. They are able to co-operate with other service providers and tourism enterprises.

Those who have completed the qualification know how to use and service sport fishing tackle and guide people in its use. They know how to guide customers safely out on the water or when moving about in the terrain. They are capable of anticipating the effects of weather on events and also find their way around in difficult weather conditions. They are capable of leading a group.

Those who have completed the qualification take safety and environmental considerations into account in their actions and know how to administer first aid. They are capable of guiding and serving customers in accordance with their backgrounds and levels, also using a language other than their own mother tongue. They know how to clean, scale, gut and prepare caught fish for customers and organise outdoor meals. They know how to comply with statutes and acquire the necessary permits for customers, guiding them to comply with fishing and environmental legislation. They know how to use and service motors, machinery and equipment, attend to waste management and function hygienically.

Those who have completed the qualification are capable of assessing their entrepreneurial potential, develop a business idea, determine a business enterprise's operating conditions and select a form of enterprise. They are able to draw up action plans and budgets. They are familiar with the principles and operating methods involved in business taxation. They are capable of

assessing profitability, pricing products and services and invoicing for these.

Those who have completed the qualification act in accordance with quality and environmental systems. They know how to manage and develop their business enterprise and maintain their working abilities and resources. They use information technology for information acquisition, planning, marketing and communication purposes.

Those who have completed the qualification may work as entrepreneurs providing fishing tourism services or as employees in business enterprises providing such services.

FORESTRY

VOCATIONAL QUALIFICATION

- Vocational Qualification in Forestry

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification in Bioenergy
- Further Qualification for Forestry Entrepreneurs
- Further Qualification for Forest Machine Operators

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification for Forest Machine Operators
- Specialist Qualification for Forestry

Vocational Qualification in Forestry

The compulsory modules common to all competence areas of the qualification are *basic forestry skills*, *basic timber harvesting skills* and *basic skills in the multiple use of forests and in environmental protection*.

The compulsory modules of the competence area in forestry (Forest Worker) are *forestry*, *timber harvesting* and *environmental protection*. Two of the optional modules listed below must also be taken.

The compulsory modules of the competence area in forest machinery (Forest Machine Operator) are *entrepreneurship and communication*, *machinery structures and maintenance* and *planning of mechanised timber harvesting*. Four optional modules must also be taken. Two of these must be chosen from the following modules: either *forest haulage* and *forest tractor technology* or *mechanised timber production* and *technology of timber production machinery* or *forest tractor technology and maintenance, servicing and repair technology* or *technology of timber production machinery and maintenance, servicing and repair technology* or *timber transport by lorry* and *timber lorry technology*. Two of the optional modules listed below must also be taken.

The compulsory modules of the competence area in the multiple use of forests (Forest Ecosystem Worker) are *knowledge of nature*, *multiple use of forests*, *environmental protection and nature conservation* and *customer service*. Two of the optional modules listed below must also be taken.

In addition to those mentioned above, two of the following optional modules must also be taken in each competence area: *forestry entrepreneurship, utilisation and processing of wood*, *forest haulage skills*, *fuel wood harvesting*, *mechanised forest improvement work*, *forestry and timber harvesting*, *nature tourism*, *basics of silviculture*.

Candidates must identify different types of habitat, the forest types and indicator species of their own operating area as well as the most important domestic tree species. They must know how to select the correct tree species and density for each habitat. They must command the measurement and assessment methods of the growing stock related to their tasks. They must be able to manage forestry work and the servicing of timber production tools and equipment. They must know how to perform the field work for planning a marked stand and timber harvesting. They must be capable of manually producing timber complying with measurement and quality requirements in cultivated forests. They must command the basics of forest tractor

operation. They must be familiar with public rights of access and the key opportunities for the recreational use of forests and must know how to make simple structures for outdoor recreation areas. They must identify the most common forest berries, edible mushrooms, game animals and fish species existing in their region. They must be aware of the significance of environmental protection and the preservation of valuable biotopes and biodiversity in forest ecosystems. They must know how to perform environmental protection work in parks, urban and scenic woods. They must know how to administer first aid and to make announcements in the event of accidents. In addition, they must command the skills and knowledge of the compulsory and optional modules in their specialisation area.

Those who have completed the qualification may work in assignments related to forestry, timber production, harvesting and haulage and also those related to the multiple use of forests and environmental protection, in accordance with their competence area.

Further Qualification in Bioenergy

The requirements of the competence-based qualification are currently being prepared.

Further Qualification for Forestry Entrepreneurs

The common modules of the qualification are *forestry planning, forest management and wood production, timber trade and timber harvesting*. In addition, one of the following modules must also be taken: *forest ecosystem management, forest estate valuation and trade, forest improvement, provision of forest services, multiple use of forests and special products, harvesting and exploitation of fuel wood and small-scale further processing of timber*.

Candidates must be familiar with forestry operating environments and the opportunities provided by forestry. They must know how to make use of forest plans, collect forest planning information and plan the finances of a forest estate.

Candidates must be familiar with the ecological, economic and production-related basics of forestry and timber harvesting. They must know how to carry out or contract out the most common forest management and timber harvesting work. They must know how to make a timber sale and measure timber.

Candidates must command the skills and knowledge of their chosen modules. Those who have chosen forest ecosystem management must be familiar with the basics of forest environment and ecosystem management and take these into account in their actions. Those who have chosen the forest estate valuation and trade module must be familiar with the basics of valuation of a forest estate and know how to trade. Those who have chosen the forest improvement module must know how to draw up a forest improvement plan that is justified both financially and in terms of forest management. Those who have chosen the provision of forest services module must be capable of providing a variety of forest services as entrepreneurs and employees. Those who have chosen the multiple use of forests module must be able to identify and handle berries, herbs and mushrooms, or they must command the basics of game management, or they must be familiar with the basics of cultivating and marketing special tree species. Those who have chosen the harvesting and exploitation of fuel wood module must

know how to carry out or contract out fuel wood harvesting operations. Those who have chosen small-scale further processing of timber must know how to make timber structures and pieces of furniture, or they must command sawn timber production or small-scale further processing of sawn timber.

Those who have completed the qualification may work as forestry entrepreneurs.

Further Qualification for Forest Machine Operators

The common modules of the qualification are *knowledge of forest nature* and *forest machine business*. In addition, either *timber felling* or *forest haulage* must also be taken. Optional modules are *wood production* and *entrepreneurship*.

Candidates must be familiar with the basic concepts of ecology and be able to identify the most common forest ecosystems. They must be able to describe the characteristics of tree species, habitat requirements and the methods of preventing damage and risks. They must be familiar with the forest development classification. They must take the requirements of the environment, landscape management and multiple use into account in their work. They must be able to explain the interdependence between work and costs and be aware of the effects of their own actions on their organisation's income and profitability. In their work, they must be able to apply the principles of marketing, publicity and personal saleswork and realise the significance of customer service. They must be able to assess their own knowledge, skills and business capabilities. In addition, according to their choice, they must be able to either fell timber mechanically or to transport timber from a stand to a roadway and to perform daily and weekly servicing of machinery.

Depending on their chosen module, those who have completed the qualification may work in assignments related to either mechanical felling or to forest haulage of timber.

Specialist Qualification for Forest Machine Operators

The modules of the qualification are *advice and guidance*, *work development*, *wood production*, *timber harvesting* and *entrepreneurship*. It is also possible to incorporate the international forest worker's module into the qualification.

Candidates must be able to acquire information on their occupational field and to use it to develop working methods and tools. They must be capable of combining vocational theory with practical work and of planning and implementing instruction and guidance events using occupational health and safety regulations and safety techniques. They must command the tasks related to wood production and be familiar with the amount of labour and the equipment and costs required for them. They must be capable of organising, leading and guiding a working group in timber harvesting and in the use and maintenance of machinery and equipment. They must be familiar with structures and operating principles of the measurement and cubing devices in felling machinery and also with felling methods and technique and be able to provide advice on these. They must be able to determine the amount of labour and the equipment required for a job together with the entrepreneur involved. They must be familiar with the principles and methods of environmental management and landscaping in timber harvesting.

be familiar with the Insect Damage Act and be able to provide guidance on the use of a method to prevent fungal damage to trees in connection with mechanical felling operations. They must be familiar with occupational health and safety legislation and instructions and be able to determine the scope of the financial liabilities and occupational health and safety responsibilities of the various parties involved in wood production and timber harvesting. They must be able to explain the principles of the legislation related to entrepreneurship in the sector and those of the operating and cost structures of a wood-processing company and also the sectors of a machine entrepreneur's operations. They must be familiar with the raw material refinement processes and with the production costs of their different phases. They must be familiar with the principles of marketing, publicity and saleswork and the importance of customer service in entrepreneurship and be able to provide guidance on these aspects.

Those who have completed the qualification may work in supervisory positions related to machine-intensive wood production and timber harvesting.

Specialist Qualification for Forestry

The common modules of the qualification are *forest ecosystem management, planning and implementation of work, customer service and interaction skills* and *forest management*. In addition, one of the following modules must also be selected: *multiple use of forests, operation and maintenance of forestry and multiple-use transport equipment* and *forest planning*. Candidates may also choose to include the *self-employment and entrepreneurship* module in their qualification.

Candidates must be able to identify and mark out valuable habitats in forest ecosystems and attend to biodiversity. They must command the terms of employment in forest work and know how to draw up work plans and work safely. They must know how to carry out forestry work and manual timber harvesting work and be capable of working in particularly demanding forest management sites, such as special sites as referred to in the Forest Act and the Nature Conservation Act as well as storm damage and slash burning sites. They must know how to communicate about their operations and be capable of guiding and advising their customers.

Those who have completed the qualification may work at diverse and demanding forest management sites.

NATURE AND THE ENVIRONMENT

VOCATIONAL QUALIFICATION

- Vocational Qualification in Natural and Environmental Protection

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification in Nature-based Production
- Further Qualification in Reindeer Farming
- Further Qualification in Wilderness and Nature Guide Services

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification for Berry, Herb and Mushroom Inspectors
- Specialist Qualification in Game Management
- Specialist Qualification for Nature Surveyors

Vocational Qualification in Natural and Environmental Protection

The compulsory module common to all competence areas of the qualification is *competence in the field of natural and environmental protection*. The compulsory module of the competence area in environmental protection (Environmental Operative) is *environmental protection*. At least one of modules 3–9 and, depending on their scopes, 2–3 modules (30 credits) of modules 3–14 and 16 must also be taken as optional modules. The compulsory module of the competence area in nature-based services (Entrepreneur in Nature-based Services) is *nature-based entrepreneurship*. Depending on their scopes, 3–4 modules (50 credits) of modules 2, 5, 7–8, 10–13 and 15–21 must also be taken as optional modules, so that at least one of modules 15, 16 or 17 is also taken. The compulsory modules of the competence area in reindeer farming (Reindeer Farming Entrepreneur) are *basic skills in reindeer farming and nature-based production* and *entrepreneurship in reindeer farming*. Depending on their scopes, 1–2 modules (10 credits) must be chosen from optional modules 24, 26 and 29–35. The compulsory module of the competence area in nature-based production (Entrepreneur in Nature-based Production) is *basic skills in reindeer farming and nature-based production*. Two modules (40 credits) must also be taken from optional modules 24–28 and a further two must be taken from modules 29–35.

The optional modules are as follows: (3) *water supply and sewerage*, (4) *management of material flows*, (5) *management and improvement of water areas*, (6) *soil excavation, management and improvement*, (7) *biotope management*, (8) *assessment and management of environmental health risks*, (9) *energy supply*, (10) *environmental quality management*, (11) *management of man-made environments*, (12) *environmental communication*, (13) *entrepreneurship in the field of environmental protection*, (14) *nature-based entrepreneurship*, (15) *nature guide services and nature tourism*, (16) *planning and construction of outdoor recreation areas*, (17) *collection, handling and marketing of natural products*, (18) *hiking guide services*, (19) *specialist competence in nature guide services*, (20) *commercialisation of natural products into foodstuffs*, (21) *processing of natural products into natural health products*, (24) *fishing and handling fish*, (25) *fishing and preparation of processed fish products*, (26) *basic work in the multiple use of forests*, (27) *functioning in multiple forest use assignments*, (28) *reindeer farming*, (29) *reindeer farming as a tourism activity service*, (30) *processing of reindeer products*, (31) *repairs to small machinery*, (32) *agricultural and forestry work*, (33) *sheep farming*, (34) *game preservation and handling and organisation of hunting trips*, (35) *business economics*.

Candidates taking the competence area in environmental protection must be familiar with the structure and operations of environmental administration as well as with the principles of environmental legislation. In their work, they must know how to safely handle, store and dispose of different substances and materials. They must be able to take the key environmental impacts of community development into account in their work and to reduce the environmental impacts related to water supply and waste water treatment. They must be able to manage basic land survey and mapping technology tasks related to community development.

Candidates taking the competence area in nature-based services must identify the biotopes typical of their region as well as their species and ecology. They must be familiar with measures involved in setting up a business enterprise and know how to exploit different sectors of nature-based entrepreneurship. They must take legislation governing nature conservation and forests, conservation programmes and the opportunities of the multiple use of forests into account in their work, along with biodiversity and the preservation of endangered species. Where necessary, they must also be capable of functioning in customer services and advisory assignments in a foreign language.

Candidates taking the competence areas in reindeer farming and nature-based production must be well acquainted with the nature, flora and fauna of Northern Finland. They must know how to plan and carry out small-scale forestry work and fodder plant cultivation in accordance with local requirements. They must be familiar with the biological principles of livestock production. They must know how to use machinery, equipment and small tools of the field, taking the environment and occupational and road safety into account.

Candidates specialising in reindeer farming must know how to perform practical work assignments related to reindeer farming activities. They must be familiar with the reindeer farming methods of different areas, the principles of the system of reindeer herding co-operatives and with the rights of the Sami people to practise reindeer farming in their areas.

Candidates specialising in nature-based production must identify fish species and know how to handle catches. They must know how to utilise game and berries and other hand-picked products and to carry out agricultural and forestry work in a Lappish environment.

Those who have completed the qualification possess diverse skills for basic natural and environmental work and, according to their competence area, for assignments related to environmental protection, nature tourism and natural products or reindeer farming and nature-based production.

Further Qualification in Nature-based Production

The compulsory modules of the qualification are *knowledge and collection of natural products, entrepreneurship in nature-based production, processing of natural products and marketing of natural products*. In addition, two of the following modules must also be selected: *special natural products, natural products and tourism, natural products in health care services, natural decorative materials, semi-cultivated and cultivated mushrooms, cultivated wild plants or honey production*.

Candidates must identify the plants, mushrooms and berries that are commercially important as well as similar species and the most common toxic species. They must know how to collect organic gathering products and to organise berry, mushroom and herb picking courses independently.

Candidates must possess extensive basic skills required for business activities and potential

for self-employment. They must understand the significance of hygiene and self-supervision and be acquainted with legislation governing the preparation of natural products. They must be familiar with the properties, cleaning, servicing and safe use of the required machinery and equipment. They must be able to receive and handle natural products properly. They must know how to prepare food products, semi-preserved and preserves from natural products, select appropriate packaging materials and methods and determine shelf life. They must be aware of the most common defects in natural products and the causes of these. They must understand the main principles of customer-focused marketing, command the basics of marketing communications and know how to draw up a achievable marketing plan.

In addition, candidates must command the skills and knowledge of their chosen specialist fields, such as collection, handling and further processing of special natural products, applications of natural products in different forms of treatment, the main features of cultivating wild plants or mushrooms, or the basics of honey production.

Those who have completed the qualification become qualified to advise on berries, herbs and mushrooms. This entitles them to organise picker training that qualifies participants for commercial collection of berries, herbs and mushrooms and to award official picker's cards.

Further Qualification in Reindeer Farming

The common module of the qualification is *reindeer and reindeer husbandry*. In addition, two of the following modules must also be chosen: *reindeer slaughtering and reindeer products, product development and marketing, entrepreneurship, administration and representative activities in reindeer farming*.

Candidates must be familiar with reindeer anatomy, vital functions, behaviour and reproduction and breedable qualities and they must know how to apply their knowledge in their work. They must be familiar with the most common diseases and ailments of reindeer and be able to identify, treat and medicate sick animals. They must be familiar with the natural conditions of and forms of land use in the reindeer husbandry area and take these into account in their work. They must be familiar with food plants and fodder suitable for reindeer and with the nutritional properties of these. They must command grazing and rotational grazing, handling and identification of reindeer and reindeer markings.

Candidates must know how to slaughter and cut up reindeer in cross-country conditions. They must know how to use machinery, equipment and tools and various structures relevant to the field. They must be aware of reindeer damage and its prevention. They must take considerations relating to ergonomics, occupational safety, animal and environmental protection, sustainable development and food hygiene into account in their actions. They must be familiar with the history, terminology and traditional knowledge of reindeer husbandry and with the culture of reindeer husbandry in their own reindeer husbandry area.

Candidates must be familiar with the financing, subsidy and direct sales regulations governing the field as well as tax procedures and social and pension security. They must know how to process reindeer meat and to develop, price and market reindeer products. They must be familiar with the prerequisites of entrepreneurship in reindeer farming and command basic business processes. They must be able to network and co-operate with different parties. They must be able to function in administration and representative activities in reindeer farming.

Those who have completed the qualification may work as employees or independent entrepreneurs in reindeer farming.

Further Qualification in Wilderness and Nature Guide Services

The modules of the qualification are *customer service and interaction skills, wilderness skills and safety, nature and environmental knowledge* and *self-employment and entrepreneurship*.

Candidates must be able to co-operate with different customers and customer groups in various situations. They must be capable of combining guide services seamlessly with customer situations and activity services. They must possess sufficient language and communication skills to manage interaction with different customers.

Candidates must be sufficiently familiar with Finland's nature, species of plants and animals, geography, history, business life and culture for the purposes of their occupation. They must be particularly well acquainted with conditions in the area and the locality where they are to work as guides.

Those who have completed the qualification are able to plan and implement different cross-country trips of varying duration in all seasons, at all hours and in all weather conditions. They are familiar with legislation and regulations in force in their field.

Those who have completed the qualification command wilderness skills and traditions and food legislation and know how to prepare meals out in the wilderness. They attend to safety and are trained in first aid skills equivalent to the first aid 2 course.

Those who have completed the qualification are capable of working for business enterprises providing tourism activity services, for example, or as independent entrepreneurs.

Specialist Qualification for Berry, Herb and Mushroom Inspectors

The modules of the qualification are *species identification; utilisation of berries, herbs and mushrooms* and *guidance and training*. In exceptional cases, students may specialise in the utilisation of either mushrooms or herbs, in which case the vocational skills requirements are applied accordingly.

Candidates must identify the plants, mushrooms and berries listed in the Requirements of the Competence-based Qualification and be familiar with their properties, such as edibility and toxicity so as to be also able to assist the authorities in the identification of plants and mushrooms. They must be able to gather plants, mushrooms and berries and prepare them for sale and to conserve them using different methods.

They must be familiar with tar and charcoal burning, sapping and the methods of gathering and using other natural products, and with legislation related to berries, herbs and mushrooms. They must be able to train advisers on berries, herbs and mushrooms and to plan and implement sector exhibitions and publicity events.

Those who have completed the qualification may work as experts in assignments related to the determination of species, use, improvement and marketing of natural products and train advisers on berries, herbs and mushrooms.

Specialist Qualification in Game Management

The modules of the qualification are *game management and hunting; game habitats and land use; game management and hunting technologies; game husbandry as part of rural livelihoods; public relations, training and*

education, research and administration; hunting culture and also *specialisation* in a specific sector of game husbandry.

Candidates must command game management and hunting in keeping with the principles of the sustainable use of nature and be familiar with game husbandry organisations and legislation. They must be familiar with business activities and with the potential of game husbandry in the development of rural livelihoods. They must be familiar with the history of hunting and be able to encourage good hunting practices and good wilderness behaviour. In addition to their mother tongue, they must also be able to communicate fluently in at least one foreign language both orally and in writing and command negotiation, co-operation and customer service situations.

Those who have completed the qualification may work in assignments related to game breeding and habitat management and to the planning, implementation and control of hunting and in expert, advisory and consultancy positions.

Specialist Qualification for Nature Surveyors

The modules of the qualification are *knowledge of species, knowledge of habitats, living organisms as bioindicators, terrain working methods, report writing* and *land-use regulation methods*.

Candidates must possess knowledge of the basic species in all the groups of organisms listed in the requirements of the competence-based qualification and have a comprehensive command of the Finnish species in at least two of the said groups and be able to independently obtain the necessary information to identify all the said groups of organisms. They must be familiar with Finnish forest and peatland types and with the most important classification categories for plants found in water, shore and cultivated areas. They must be able to mark common habitats and valuable habitats with exclusion areas on a map. They must be familiar with natural changes in habitats, such as the different stages of forest development, the zoning of shore meadows and the changes in plant life on land up-lift shores and the development of an overgrown lake into a swampy marsh. They must be familiar with the species indicating their habitats and be able to draw conclusions about the occurrence of species and to give recommendations on managing and conserving a habitat. They must be familiar with the methods for surveying organisms, be able to produce collection samples and to draw up written reports along with maps and appendices on the area they have surveyed.

Those who have completed the qualification possess basic skills and knowledge to determine the most important features of natural environments.

OTHER EDUCATION IN NATURAL RESOURCES AND THE ENVIRONMENT

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification for Animal Attendants
- Further Qualification in Golf Course Maintenance

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification in Golf Course Maintenance
- Specialist Qualification for Laboratory Animal Attendants
- Specialist Qualification in Rural Development

Further Qualification for Animal Attendants

The qualification consists of five specialisation areas, each of which composed of three compulsory modules. The content of the modules is different in different specialisation areas. In the specialisation areas in care for small animals, care for laboratory animals and care for farmed animals, the following modules must be taken: *knowledge and care of animals, treatment and laboratory work, customer service and communication*.

In addition, it is also possible to take the *entrepreneurship* module. In the specialisation areas in animal boarding and pet trade, the following modules must be taken: *knowledge and care of animals, entrepreneurship, customer service and communication*.

Candidates must be familiar with the normal life span of an animal. They must command the basics of general biology and possess an overview of the specific biological properties of animals. They must be able to apply their knowledge of animal behaviour and of the nutritional and environmental requirements of different animal groups in caring for animals. They must possess basic knowledge of the anatomy, physiology and reproductive biology of animals. They must be familiar with the legislation and regulations of the sector and its ethical principles and must comply with these in their work. They must be able to use the machinery and equipment required in their work and take occupational safety and environmental considerations into account in their actions. They must work in accordance with the principles of customer service. They must be able to guide and advise customers on matters relating to animal care. They must also be able to serve customers in a language other than their mother tongue. They must be flexible and co-operative in communication situations. They must know how to utilise their basic information technology skills, obtain information and develop their vocational skills. In addition, depending on their chosen specialisation area, they must command the skills and knowledge of either the treatment and laboratory work or the entrepreneurship module.

Those who have completed the qualification are equipped to work in veterinary surgeries, zoos, animal boarding establishments, pet shops or research institutes in assignments according to their specialisation area.

Further Qualification in Golf Course Maintenance

The qualification comprises the following three compulsory modules: *maintenance of green surfaces,*

pre-game golf course preparation and construction and renovation. In addition, it is also possible to take the optional *entrepreneurship* module.

Candidates must be familiar with growth factors and means of influencing plant growth. They must be familiar with species of plants found on a golf course and the properties, growth requirements and applications of its species of grass. They must be familiar with different playing areas and their general principles relating to the game and course maintenance. They must know how to mow and cut areas using different methods and techniques. They must know how to carry out mechanical course maintenance work and fertilisation tasks using different methods. They must be familiar with the general principles of plant protection and must know how to carry out plant protection work. They must be familiar with different machines used on a golf course and the typical effects that they have on the course. They must also know how to use the machines so as to produce a standard of quality that matches the objective in terms of design, precision and appearance and that promotes the playability of the course.

Candidates must be able to carry out maintenance work relating to golf course traps and hazards and border area vegetation. They must be able to take the rules of the game of golf into account when attending to the playing condition of the course. They must know how to perform daily inspections, adjustments and servicing of machinery. They must know how to service and repair golf course fittings and know how to lay these out safely on the course. They must know how to use and maintain course drainage and sprinkler irrigation systems. They must be familiar with the structures and materials of different course areas and layers and with their properties. They must be capable of assisting in construction and modernisation of different course areas using golf course machinery, equipment and tools. They must take occupational safety and environmental protection into account. They must work in a customer-focused and cost-efficient manner and in compliance with jointly agreed policies.

Those who have completed the qualification may work as employees or independent entrepreneurs within golf course maintenance.

Specialist Qualification in Golf Course Maintenance

The common modules of the qualification are *maintenance of lawns and greens, attendance to the condition of the course for general play and for tournaments, course construction and renovation, planning and monitoring of course maintenance and supervisory functions.* In addition, it is also possible to take the optional *entrepreneurship* module.

Candidates must know how to regulate the growth factors of substrates and carry out mechanical maintenance work so as to be capable of drawing up course maintenance plans and monitoring implementation of these. They must know how to design the playing areas of a golf course so as to create a balanced whole and to regulate its relative playing difficulty.

Candidates must command tournament standards for golf courses and be familiar with factors influencing approval of a course for handicapping purposes. They must be familiar with the materials used in course construction and their properties and command the structures of individual golf courses. They must be familiar with the concepts of construction and development of building projects and know how to operate as supervisors of course construction and renovation work. They must command the functions of golf course irrigation and drainage systems. They must know how to comply with the objectives and financial policies of their own

work organisation. They must know how to plan, organise and supervise work in a flexible and economical manner and to monitor its implementation and finances. They must be familiar with the environmental impact of golf course construction and be capable of implementing the environmental system of the Finnish Golf Association.

Candidates must command communications, interaction and negotiation skills required in supervisory work. They must know how to function as workplace supervisors and instructors. They must be familiar with customer-focused service activities and know how to function as golf course PR officers. They must be able to examine business opportunities offered by their own occupational field and to assess their own entrepreneurial potential.

Those who have completed the qualification are capable of working in golf course maintenance assignments as employees or as independent entrepreneurs.

Specialist Qualification for Laboratory Animal Attendants

The compulsory modules of the qualification are *basic animal laboratory functions, animal testing techniques, supervision of work and managerial skills* and *customer service*.

Those who have completed the qualification are versatile professionals in attendance and handling of laboratory animals. They are responsible for daily animal welfare at animal laboratory units, participate in carrying out studies and function in customer service assignments. They are familiar with the principles of the vital functions of animals and attend to animals, taking their specific characteristics, behaviour and environmental requirements into account. They know how to organise animal production and attend to animals in isolated conditions and also to maintain special animal populations. They are aware of the significance of animal health to successful research and know how to act so as to promote animal health. They take the occupational safety and environmental considerations of their occupational field into account in their work. They work in compliance with legislation and ethical considerations so as to take an active role in guaranteeing animal welfare in all phases of the animal life cycle and animal studies.

Those who have completed the qualification are familiar with animal testing techniques and command the most common dosage and sampling methods. They know how to assist in surgery and to attend to animals in different phases of operations. In addition, they know how to use special techniques related to animal studies and command permitted methods used for putting down animals. They work in compliance with the general principles of hygiene and know how to use appropriate disinfection and sterilisation methods. They know how to dilute test substances and drugs and to dose and store them.

Those who have completed the qualification are able to function as workplace instructors, to plan, organise and supervise work flexibly and economically and to monitor performance of work assignments. They are able to function in groups and in different interactive and negotiation situations. They are familiar with rights and responsibilities concerning employers and employees and are also able to act accordingly in conflict situations. They endeavour to actively develop working methods and to apply new information, emphasising animal welfare considerations, occupational safety, economical and environmental considerations. They are aware of the principles of profitable operations and are capable of participating in planning and monitoring the finances and functions of their own workplace.

Those who have completed the qualification are familiar with the principles of customer service and know how to advise customers on issues related to laboratory animals and their own unit. They know how to organise services requested by customers and attend to orders for animals and equipment. They are also able to use English in customer service situations. They make use of information technology skills in their work, command bookkeeping in terms of animals and know how to draw up reports for use both within their own unit and by their customers.

Those who have completed the qualification may work in supervisory positions at animal laboratory units, as technical assistants in zoological studies or implement equivalent testing techniques.

Specialist Qualification in Rural Development

The compulsory modules of the qualification are *entrepreneurship*, *project competence* and *functioning as a developer*. In the module covering functioning as a developer, one of the following development areas must be chosen: further processing of foodstuffs; further processing of wood; rural tourism; provision and reorganisation of services; production and utilisation of bioenergy; management of architectural heritage, landscape and the environment; village development; diversified entrepreneurship; information services; crafts; cultural production.

Candidates must be able to assess entrepreneurial qualities, enterprise and business ideas as well as action plans and apply their knowledge to the assessment of aspiring entrepreneurs in particular. They must be familiar with the steps involved in setting up a business and be acquainted with the marketing of products and services. They must be aware of the traditions of rural culture, the bodies participating in rural development, the operating methods of village communities and the principles of local government. They must be familiar with the development programmes of regional and rural policies and their funding sources as well as with the aids available for the development of business activities. They must be capable of drawing up project and financing plans and application documents, leading projects and assessing the profitability of operations with the aid of calculations, financial statements and key ratios.

They must know how to use information technology in project administration. They must be familiar with statutes and regulations governing business operations and consumer protection, safety and environmental requirements as well as with the principles of sustainable development. They must know how to find out about the criteria for a warding enterprise-specific financial aid and exploit the benefits of different funding alternatives. They must be familiar with the typical problems of different types of enterprises and with how to solve them.

They must be aware of the effects of quality on customer satisfaction and be able to devise a simple quality system. They must know how to act in personal counselling situations, be capable of speaking and teaching at different events and know how to draw up information bulletins and newspaper articles. They must be accustomed to leading projects and capable of assembling an effective co-operation network. They must also be able to manage interaction and instruction situations in a language other than their mother tongue.

Those who have completed the qualification may assist entrepreneurs and aspiring entrepreneurs with assignments aiming to develop and diversify rural business activities. In relation to their development area, they are outside experts specialised in providing rural entrepreneurs with information, alternatives and competence.

SOCIAL SERVICES, HEALTH AND SPORTS

SOCIAL SECTOR

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification for Child Minders
- Further Qualification for Special Needs Assistants in Educational Institutions
- Further Qualification in Morning and Afternoon Activity Instruction for Schoolchildren

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification for Special Needs Assistants in Educational Institutions

Further Qualification for Child Minders

The common modules of the qualification are *educational awareness, educational partnership and co-operation skills, early childhood education and care and health, safety and nutrition*. In addition, two of the following modules must also be chosen: *special needs children, care of children with allergies and special dietary requirements, multiculturalism and entrepreneurship*.

Candidates must be able to make ethically viable decisions and be aware of values guiding their own work and the ethical, moral and legal responsibilities, requirements and rights relating to their occupation and work. They must comply with occupational safety regulations. They must be familiar with the key concepts and theoretical foundations of early childhood education and care. They must be aware of their responsibility for creating conditions for educational partnership and equal co-operation.

Candidates must work with initiative and actively, aiming to increase parents' involvement and develop different forms of co-operation. They must know how to make use of their own professional knowledge and experience and parents' knowledge and experience of their own children in order to support each child's individual growth process. They must even be capable of dealing with families who are in difficult circumstances. In addition, they must understand the challenges set by shift care and the significance of effective replacement care arrangements. They must identify emotions relating to different interactive situations and know how to act professionally in such situations. They must know how to use various methods of communication and function as responsible members of their own team. They must be able to assess and develop their own work, vocational skills and occupational field.

Candidates must understand that attendance to a child's basic needs and physical and mental safety create the foundation for the child's overall well-being. They must form a balanced whole of care, education and instruction. They must understand the significance of language in early childhood education and care and know how to support children's linguistic development and expression. They must be familiar with behavioural models characteristic to children. They must be familiar with the content-related orientations of early childhood education and care and understand their significance in terms of diversifying activities. They must know how to design an effective and diverse environment that inspires learning and to make use of opportunities available in their local environment. They must know how children's development progresses in

general terms and know how to make use of this knowledge in their work. They must be able to plan activities in a conscious and goal-oriented manner.

Candidates must be able to attend to cleanliness and safety. They must know how to prepare wholesome and safe food. They must act in accordance with the principles of sustainable development. They must know how to take appropriate action in the event of children's illness and accidents. They must be familiar with the principles of special needs education and its provision. They must know how to provide a child in need of special support with individual support in co-operation with other people involved in the child's education and rehabilitation. Candidates must be able to take children with allergies into account in their care work. They must be able to take children and families coming from different cultures into account in their actions.

Those who have completed the qualification may work in occupations relating to early childhood education and care.

Further Qualification for Special Needs Assistants in Educational Institutions

The requirements of the qualification are *operating environments in special needs assistance, support of personal growth, guidance of learning* and *support of functional abilities*.

Candidates must be familiar with the job descriptions of special needs assistants in different environments: in early childhood education and care, basic education, upper secondary education and training, leisure activities and in personal assistance for adults. Candidates must be able to support the growth of their individual clients, taking account of the various phases of life, its critical points of development, obstacles to healthy development and the special characteristics caused by the most common disabilities and diseases. They must recognise the values of their own work and the conceptions of humanity underlying their work. They must be familiar with a variety of views on education and recognise the societal processes and cultural differences influencing clients' living conditions and ways of life. They must be familiar with the laws, statutes and principles of occupational ethics regulating their work.

Those who have completed the qualification are able to support and help clients of different ages and from different cultural backgrounds with those functions which they are unable to cope with due to their phase of development, disability or social circumstances. They are familiar with various technical aids and equipment and know how to use and service these. They are able to plan, implement and evaluate guidance in learning situations. They have knowledge of pedagogics, learning and special education and possess skills in individual and small group instruction.

They may work in day care, schools and leisure activities.

Further Qualification in Morning and Afternoon Activity Instruction for Schoolchildren

The common modules of the qualification are *premises of instruction, support for children's growth, health and well-being, activity instruction* and *co-operation and professional interaction*. In addition, it is possible to take the *entrepreneurship* module.

Candidates must be aware of the value of their work, the conceptions of humanity underlying their work and the general ethical premises of their activities and occupation. They must use ethical discretion when making decisions. They must command the key contents of acts and other statutes, recommendations, declarations and other documents governing their field. They must be familiar with society's service and decision-making structures regulating instruction of children. They must command the basics of morning and afternoon activities for children and be acquainted with organisers and different forms of implementing such activities and workers' job descriptions. They must be aware of the ethical, moral and legal responsibilities, requirements and rights relating to their occupation and work. They must comply with occupational safety regulations and act in compliance with the principles of internal entrepreneurship.

Candidates must be familiar with key educational and learning conceptions and understand the significance of these in instruction activities. They must be familiar with key factors influencing human growth and development. They must know how to support development of children's positive self-image and self-esteem and promote children's social development. They must be able to work with children from different cultural backgrounds. They must be familiar with the cultural background and lifestyle of Finnish society, while also being familiar with minority cultures and aware of the challenges and richness that these bring. They must be able to take the needs of children requiring special support and education into account in instruction activities.

They must be familiar with factors underlying social exclusion and be able to take action to prevent these in co-operation with experts. They must be able to create a safe and pleasant operating environment. They must know how to support children's health and promote children's healthy lifestyle choices. They must know how to administer first aid and attend to children's special needs. They must be capable of assessing their own work and actions.

Candidates must be aware of the ways in which their work is steered by the action plan approved by the local authority. They must know how to plan high-quality morning and afternoon activities. They must command the key methods of individual, group and community instruction. They must be able to arrange diversified activities and stimuli. They must know how to plan, implement and assess supervised physical exercise and expressive activities as part of art education, day-to-day chores and manual skills. They must be able to work in teams and in co-operation with other workers and children's parents or guardians and to function in multi-disciplinary networks. They must command written and oral presentation skills as required in their work. They must be capable of acquiring information, mastering basic use of computers. They must be able to process their emotions appropriately. They must understand the responsibility involved in and the significance of their own work. They must be able to pay attention to their own working abilities and those of their working community.

Those who have completed the qualification may work at afternoon clubs, day-care units, schools, leisure centres, in civic and organisational activities and in parish welfare work for children and families and as independent entrepreneurs.

Specialist Qualification for Special Needs Assistants in Educational Institutions

The common modules of the qualification are *operating environments in special needs assistance; activity-based methods and interaction skills; instruction, support and assistance for groups in need of general support*. In addition, two of the following modules must also be taken: *instruction, support and assistance for*

people in need of support; instruction, support and assistance for people in need of special support; participation in instruction of schoolchildren's morning or afternoon activities and entrepreneurship.

Candidates must be familiar with different conceptions of humanity and recognise their own conception of humanity and understand the influence of their view of humanity on their own actions. They must be familiar with the job descriptions of special needs assistants in early childhood education and care, basic education, upper secondary vocational education and training and general upper secondary education, leisure activities and as personal assistants for adults. They must be familiar with the key contents of laws and other statutes, recommendations and declarations steering their own work and be able to follow changes in these.

Candidates must be familiar with rights, responsibilities and requirements relating to their occupation. They must comply with the field's occupational safety regulations and the Employment Contracts Act, use correct working postures and act in accordance with the principles of internal entrepreneurship. They must act in a goal-oriented and proactive manner and in compliance with the principles of sustainable development. They must be capable of taking special responsibility in their work and comply with ethical principles and use their moral judgement. They must know how to use different manual and expressive methods and techniques and guide and advise clients in their use. They must be able to organise physical activities.

Candidates must be able to support the development of each client's communication and expression skills through their own actions. They must take cultural factors into account in their actions. They must be familiar with the principles of working with a partner and understand the importance of occupational interaction within working communities and co-operation networks. They must be familiar with pupil welfare services and know how to function in occupational interaction with their clients' parents/guardians and growth environments.

Candidates must be capable of seeking peer guidance and other forms of workplace supervision and counselling. They must understand the significance of multidisciplinary co-operation and be capable of carrying it out. They must know how to function as learning instructors for clients in need of support. They must be aware of the significance of learning skills to learning. They must be able to identify learning difficulties and attention deficit disorders. They must know how to function as learning instructors for clients in need of special support and know how to use various rehabilitation methods in accordance with instructions from experts. They must be capable of assisting a group. They must be capable of attending to the technical aids and equipment they use and to their operating environment.

Candidates must be familiar with the key contents of statutes regulating schoolchildren's morning and afternoon activities.

Those who have completed the qualification are able to assess their own entrepreneurial potential and command operations required for entrepreneurship.

The qualification provides capabilities to work in assignments requiring specialist competence in educational guidance and functional support within their own competence area. The competence-based qualification are currently being prepared.

HEALTH CARE

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification for Autopsy Assistants
- Further Qualification for Chiropodists

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification in Orthopaedic Casting
- Specialist Qualification in Psychiatric Care

Further Qualification for Autopsy Assistants

The requirements of the competence-based qualification are currently being prepared.

Further Qualification for Chiropodists

The compulsory parts of the qualification are: *chiropody and its development as part of the social and health care service system, chiropody treatment, chiropody in demanding customer service*. In addition, one of the following modules must also be selected: *independent self-employment, essential oils in chiropody and foot zone therapy*. The *chiropody treatment* module must be completed prior to taking the *chiropody in demanding customer service* module.

Chiropody is covered within the social and health care services system. The vocational skills requirements for the Further Qualification for Chiropodists have been determined such that they cover skills and knowledge equivalent to upper secondary level education and training required of health care professionals or upper secondary level education and training in beauty care. In addition, the qualification requires supplementary and advanced studies and sufficient work experience in the field.

Candidates must be familiar with and comply with the principles of social and health care ethics and customer service. They must be acquainted with physical, mental and social human activity. They must approach each customer in a humane and holistic manner. They must be capable of co-operating with other experts and of creating co-operation networks. They must be able to organise their care environment so as to make it clean, tidy and safe and attend to occupational ergonomics.

Those who have completed the qualification know how to plan chiropody and individual treatment sessions, taking each customer's situation into account holistically. They are able to acquire information through listening, observation and palpation. They know how to examine and guide customers in treatment situations and advise them on self-care.

Those who have completed the qualification treat the most common lower limb problems and refer customers to specialists for more demanding treatments. They are able to deal appropriately with demanding lower limb problems of customers of different ages. Those who have completed the qualification are also able to take note of changes occurring in customers' general condition or illness and know how to refer their customers for appropriate treatment.

Those who have completed the qualification are able to assess and willing to develop their own actions.

Those who have completed the qualification may work as independent self-employed people or as employees in various operating environments within social and health care services, such as hospitals, social and medical institutions, service housing units, rehabilitation centres, spas, beauty parlours and at customers' homes.

Specialist Qualification in Orthopaedic Casting

The compulsory modules of the qualification are *knowledge of the social and health care service system, immobilisation therapy (immobilisation and functional immobilisation) and development of vocational skills*. In addition, candidates must take either *information technology* or *independent self-employment*.

Candidates must be broadly familiar with the social and health care service system. For example, they must be familiar with the standards of Finland's NOBAB (Nordic Association for the Needs of Sick Children) for the treatment of hospitalised children, with the co-operation and expert network in social and health care services and legislation governing the field. They must be familiar with different elements of rehabilitation and the progress of client-focused rehabilitation as well as with opportunities provided by the service system in immobilisation therapy.

Candidates must be able to deal with different patients individually, holistically and safely. They must be capable of expressing the concepts of immobilisation therapy, using both technical terms and lay language. They must be able to obtain details of a patient's case history, prepare a treatment plan and guide the patient holistically at different stages of his or her treatment and in different operating environments. They must command patients' skin and wound care and guidance in such care, anaesthetic care and pharmacotherapy according to doctor's orders, peripheral cannulation and intravenous medication under the supervision of a doctor. They must be familiar with the technical properties of external orthoses and know how to adjust these, use diathermy equipment, split a traditional lime plaster cast and operate and service devices and instruments. Their competencies should include documentation of treatment, monitoring and guidance into case records.

Candidates must command different bandaging materials and handling techniques used in immobilisation therapy and be capable of assisting in repositioning and immobilisation related to different injuries. They must know how to prepare orthoses and functional immobilisation bandages, apply dressings and bandages, prepare functional protective footwear and guide people in its use.

Candidates must be able to function as experts in implementation of immobilisation therapy, use different information acquisition techniques, assess and develop their own work and familiarise and supervise students in immobilisation therapy.

Those who have completed the qualification may work as experts in planning and implementation of immobilisation therapy, in immobilisation therapy for special groups and train, teach and develop techniques and technical aids for immobilisation therapy. Professionals specialising in immobilisation therapy work within the health care service system at different levels of progressive treatment. Those who have completed the Specialist Qualification in Orthopaedic Casting work in positions requiring specialist competence in immobilisation therapy in specialised medical care and primary health care units, such as outpatient departments, casualty units and operating theatres.

Specialist Qualification in Psychiatric Care

The common modules of the qualification are *the basic psychiatric assistance process*, including a) assessment of treatment and rehabilitation needs and referral to appropriate services, b) planning of treatment and rehabilitation, c) implementation of treatment and rehabilitation, and d) assessment and development of treatment, rehabilitation and the working community; *acute and crisis care* and *substance abuse welfare work*. In addition, two of the following optional modules must be taken: *forensic psychiatric nursing*, *psychiatric rehabilitation*, *psychogeriatric nursing*, *child and adolescent psychiatric nursing*, *networking and family welfare work* and *independent self-employment*.

The work of those who have completed the Specialist Qualification in Psychiatric Care is part of psychiatric expert activities within the social and health care sector.

Candidates must work in a client-focused manner, respecting human dignity. They must command legislation governing the field and be familiar with different service systems. They must have in-depth command of the psychiatric treatment and rehabilitation process and the operating methods involved. They must be capable of interaction and possess the ability to deal with a client/patient and his or her family and friends in complex life circumstances requiring psychiatric treatment and rehabilitation.

Candidates must be able to take account of each client's mental state, living environment, values and norms, the special characteristics of his or her current phase of life and the need for individual treatment and rehabilitation. They must be able to apply and use family welfare work and networking as well as teamwork and creative and activity-based methods.

Candidates must be familiar with and be able to apply acute and crisis treatments. They must command the methods used in substance abuse welfare work. In addition, they must possess in-depth knowledge of the special characteristics of their chosen area.

Candidates must be able to draw up treatment and rehabilitation plans. They must know how to make use of care and rehabilitation service chains and co-operate with other experts. They must command key forms of treatment and rehabilitation, use a patient documentation system and the resource-driven work approach.

Those who have completed the qualification are able to justify the decisions and choices made in their work and assess their effects as members of a multidisciplinary working community. They look after their own well-being at work and make use of clinical supervision and training in support of their work. Improving the quality of work requires qualification-holders to have the ability and desire for continuous assessment of their own actions, self-development and internal entrepreneurship.

Those who have completed the Specialist Qualification in Psychiatric Care may work in various assignments requiring specialist competence in psychiatric care within the social and health care sector. Such work is carried out in primary and specialised medical care units and in private and third-sector units providing psychiatric treatment and rehabilitation services in both community care and institutional settings.

HEALTH CARE AND SOCIAL SERVICES

VOCATIONAL QUALIFICATION

- Vocational Qualification in Social and Health Care, Practical Nurse

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification in Intellectual Disability Services
- Further Qualification in Substance Abuse Welfare Work

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification in Care for the Elderly
- Specialist Qualification in Intellectual Disability Services
- Specialist Qualification in Interpreting Services for People with Speech Defects

Vocational Qualification in Social and Health Care, Practical Nurse

The common modules of the qualification are *support and guidance of growth, nursing and care* and *rehabilitation support*. In addition, candidates must choose one of the following Study Programmes: Study Programme in Emergency Care, Study Programme in Rehabilitation, Study Programme in Children's and Youth Care and Education, Study Programme in Mental Health and Substance Abuse Welfare Work, Study Programme in Nursing and Care, Study Programme in Oral and Dental Care, Study Programme in Care for the Disabled, Study Programme in Care for the Elderly, and Study Programme in Customer Services and Information Management.

Candidates must be familiar with the operating system of social and health care and be able to guide clients in the use of basic services. In their work, they must comply with the statutes, basic values, conceptions of humanity and codes of professional ethics in the field of social and health care. They must know how to seek information from different sources and to use information technology and documentation tools. They must express themselves clearly both orally and in writing, be able to communicate in different situations in an appropriate manner and listen to their clients. They must be familiar with the basics of methodical client work and entrepreneurship and work economically and in accordance with quality thinking.

In their work, candidates must know how to apply their knowledge of psychological, physical, social and moral human development. They must command individual and group guidance and be able to support the growth, development and psychological wellbeing of people of different ages and from different cultural backgrounds. They must possess knowledge of anatomy and physiology as well as of the significance of psychological and social factors to illness and recovery, as required in their work. They must know how to independently provide basic care for children, young people, adults and elderly people of different ages and from different backgrounds. They must command drug administration methods and know how to observe the effects and side effects of pharmaceuticals.

In their work, candidates must comply with statutes governing prevention and control of communicable diseases, the principles of asepsis, safety regulations and occupational health and safety instructions. They must possess first aid skills equivalent to first aid level 1. In their work, they must know how to use knowledge of the most common groups of disabled people as well as of rehabilitation and support provided for people with mental or substance abuse problems.

Candidates must be familiar with the methods and services of medical, social and occupational rehabilitation. They must know how to support the independent living of their individual clients/patients and take the perspective of rehabilitation into account in arranging their immediate environment and everyday life.

Candidates taking the *Study Programme in Emergency Care* must know how to treat emergency patients in different emergency care operating environments, including ambulance services, emergency departments, outpatient departments and perioperative nursing units. Their work involves solving problems occurring in basic level emergency care that fall within a practical nurse's area of responsibility. They must be able to use the knowledge base of human treatment, anatomy and physiology, pharmaceutical care and statutes governing the field and know how to participate in multidisciplinary co-operation with different authorities. They must take the effects of different injuries and illnesses on human vital functions and behaviour as well as prevention of complications into account in their work and know how to work in compliance with aseptic guidelines. They must know how to use medical and nursing equipment in their work and know how to perform its daily servicing measures and set it up for use. They must command various patient repositioning and immobilisation treatments, including instructions.

Those taking the *Study Programme in Rehabilitation* must be able to assist, support and guide clients in accordance with a rehabilitative approach to work in different rehabilitation operating areas within the rehabilitation service system, such as a client's home environment, home care services, day hospitals, sheltered housing jobs, work and activity centres, workshops, service centres, different third sector jobs, inpatient departments and rehabilitation units of health centres, rehabilitation institutions, spas and personal or group assistant jobs or equivalent assignments.

Those taking the *Study Programme in Children's and Youth Care and Education* must know how to care for healthy newborn babies at hospitals and at home. They must be able to work in day care in the operating environments of day-care centres and family day care and to participate in early childhood education and care assignments as members of working groups. They must know how to work in afternoon activities and in special needs assistance for schoolchildren. They must know how to provide nursing for children and young people in accordance with a rehabilitative approach to work at hospitals and homes within a practical nurse's area of responsibility. In addition, they must be able to care for and educate young people within a practical nurse's area of responsibility.

Those taking the *Study Programme in Mental Health and Substance Abuse Welfare Work* must know how to plan, implement and evaluate the care process of mental health patients in accordance with a rehabilitative approach to work in multidisciplinary co-operation within different mental health and psychiatric care operating environments. In addition, they must know how to plan, implement and evaluate care for substance abusers together with individual clients, their families and other experts. They must be able to promote the rehabilitation of mental health clients and substance abusers in multidisciplinary teams.

Those taking the *Study Programme in Nursing and Care* must know how to plan, implement and evaluate nursing care for clients/patients in accordance with the rehabilitative approach to work at health centres and hospitals and their care in home help and home nursing services, old people's homes and service housing units. They must know how to handle pharmaceuticals and to monitor their effects in nursing and home care services operating environments. In addition, they must be able to prepare food and attend to the cleanliness and pleasantness of homes in home care services operating environments.

Those taking the *Study Programme in Oral and Dental Care* must be able to work in the oral health care service system, in oral health promotion, in basic and specialised oral and dental care at public dental clinics and at private dental surgeries.

Those taking the *Study Programme in Care for the Disabled* must master basic care, education and rehabilitation for disabled people in accordance with a rehabilitative approach to work at home, in community care services, in institutions and in disabled people's organisations. They must be able to provide day and family care for disabled people.

Those taking the *Study Programme in Care for the Elderly* must know how to care for elderly people and support and assist them in rehabilitation in accordance with a rehabilitative approach to work at home, in home help services, institutions and organisations as well as in elderly people's housing service units.

Those taking the *Study Programme in Customer Services and Information Management* must know how to function in secretarial work in social and health care within community care services, institutions and organisations. In addition, they must know how to plan, attend to and evaluate care for patients in accordance with a rehabilitative approach to work in health-centre and outpatient nursing services within a practical nurse's area of responsibility.

Those who have completed the qualification possess the skills to work both independently and as members of multidisciplinary teams in nursing, care and educational assignments in social and health care services.

Further Qualification in Intellectual Disability Services

The requirements of the competence-based qualification are currently being prepared.

Further Qualification in Substance Abuse Welfare Work

The common modules of the qualification are *basics of substance abuse welfare work*, *professional practice in substance abuse welfare work* and *multidisciplinary co-operation in substance abuse welfare work*. In addition, two of the following modules must also be taken: *psychosocial approach towards substance abuse welfare work*, *Christian welfare work with substance abusers*, *Myllyhoito® Model*, *organisational substance abuse welfare work*, *preventive care of substance abusers* and *entrepreneurship*.

Candidates must be familiar with the statutes governing substance abuse welfare work. They must be familiar with the explanatory models and manifestations of the development of and recovery from dependence. They must understand the close linkage between their work and society. They must comply with the ethical principles of their occupation. They must be familiar with the substance abuse welfare system as part of the social and health care service system. They must be familiar with services provided by different parties.

Candidates must be familiar with key approaches to substance abuse welfare work and command project work as a form of operation. They must command care, rehabilitation and assistance work. They must know how to acquire information and provide individual services and command interaction and co-operation between different occupational groups. They must attend to the safety of their operating environment and know how to take appropriate action in crises. They must recognise their own resources and take account of other people's resources in interactive situations.

Candidates must be aware of the principles and significance of multidisciplinary work in substance abuse welfare work. They must be familiar with intoxicating and addictive substances and be able to recognise a substance abuse problem. They must be aware of the social, physical, mental and emotional effects of substance abuse, its manifestations and related health hazards and the key medical treatments of substance dependence.

In addition, candidates must command the skills and knowledge of their chosen modules. Those taking the psychosocial approach towards substance abuse welfare work module must, among other things, know how to interact in a therapeutic relationship. They must be able to take their clients' social networks into account and be familiar with the use of group therapy.

Those who have chosen the Christian welfare work with substance abusers module must be familiar with the substance abuse welfare strategy of the Evangelical-Lutheran Church and the principles of Church community work, for example.

Those taking the Myllyhoito® Model module must, among other things, know how to act in accordance with the Myllyhoito® Model's explanatory models for substance dependence and with the 12-step recovery programme.

Those who have chosen the organisational substance abuse welfare work module must, among other things, be familiar with substance abuse welfare work carried out within organisations in general and the operational policies of a specific organisation in particular.

Candidates taking the preventive substance abuse welfare work module must, among other things, be able to select an appropriate intervention for their chosen target or target group.

Those taking the entrepreneurship module must be able to assess their own entrepreneurial potential, among other things. They must be able to reflect on their business ideas and determine their operating conditions.

Those who have completed the qualification may work in assignments requiring competence in substance abuse welfare work. The work is carried out within different services, such as day activity centres, outpatient units, health centres, housing services, substance abuse rehabilitation units, hospitals, home care services, mental health work, youth work, child welfare, Church community work, non-governmental organisations and voluntary services.

Specialist Qualification in Care for the Elderly

The qualification comprises two compulsory modules and one optional module. The compulsory modules of the qualification are *functioning in the service system for elderly people and in working communities* and *expertise in care for the elderly*. One of the following modules must also be selected: *stimulating and recreational activities in care for the elderly*, *rehabilitative nursing and care for elderly people with dementia*, *nursing and care to promote elderly people's mental health* or *the validation method in care for the elderly*. In addition, it is also possible to take the *independent self-employment* module.

Candidates must understand and be familiar with changes related to ageing and with their effects on everyday life. They must understand the social, mental, physical and spiritual needs of elderly people. Those who have completed the qualification must be able to plan, implement and evaluate activities intended for elderly people.

Candidates must be familiar with the content and meaning of statutes governing care for the elderly. They must know how to develop effective service networks and practices for elderly people in co-operation with families and friends. They must be able to evaluate and develop the effectiveness of services and the operations of their working community. They must be able to

acquire information from diverse sources and know how to exploit information management systems and information networks. They must be able to function as part of an organisation and be familiar with key organisational structures.

Candidates must be able to apply information and competence that steer care for the elderly in their own work. They must be able to express themselves clearly, be familiar with plain language and augmentative communication methods and know how to use these. They must take individual elderly people's cultural backgrounds into account and support elderly people and their families and friends in philosophical and spiritual issues. They must be familiar with the needs of special groups and with key health problems facing elderly people. They must know how to provide rehabilitative nursing and care and use rehabilitation and therapeutic methods under expert supervision. They must be able to guide elderly people in the use of assistive devices and to promote stimulating everyday activities and elderly people's mental health. They must know how to provide palliative care as well as rehabilitative nursing and care for elderly people with memory disorders, disabilities or substance abuse problems.

In addition, candidates must command the content of their chosen specialist area.

Those who have completed the qualification may work in various assignments in nursing and care for elderly people. They may work in different basic assignments in health care and social services that involve functions requiring specialised competence in rehabilitative nursing and care for elderly people. The work is carried out in different operating environments within the public, private and third sectors.

Specialist Qualification in Intellectual Disability Services

The requirements of the competence-based qualification are currently being prepared.

Specialist Qualification for Interpreters for People with Speech Defects

The common modules of the qualification are *basics of interpreting services for people with severe speech impairments*, *interpreting*, *interpretation* and *assistive technology in support of communication*. In addition, one of the following modules must be chosen: *information technology in communication* or *entrepreneurship*.

Candidates must be familiar with the social and health care service system in so far as it is related to their own field and must comply with its ethical principles. They must command the interpreting service system for people with severe speech impairments and codes guiding the system. They must command professional interaction. They must co-operate with the client and, where necessary, with other specialists and the client's family and friends. They must have good command of oral and written expression. They must know how to comply with occupational safety regulations and maintain their own vocational skills.

Candidates must have basic knowledge of the nature of communication impairments and injuries and illnesses that cause such impairments. They must command different interpreting methods, such as oral interpreting and speech-to-text interpreting, and the basics of Blissymbolics. They must comply with the ethical code of interpreting services. They must be able to prepare thoroughly for interpreting and interpretation situations. They must know how to interpret as required in each specific situation.

Candidates must command different methods of interpretation: use of pictures, objects, writing and graphical symbols, drawing, signing key words, nonverbal communication. They must command factors relating to steering communication environments.

Candidates must command basic use of computers. They must know how to use symbol utility or mapping software. They must be able to use communication equipment.

Candidates must be able to use special e-mail applications and communications software.

Those who have chosen the entrepreneurship module must be able to assess their own entrepreneurial potential. They must be able to examine the field, considering the opportunities it provides for and the risks involved in starting up and developing business operations.

Those who have completed the qualification may work in interpreting services within social and health care institutions, enterprises or as independent entrepreneurs.

DENTISTRY AND OTHER DENTAL SERVICES

VOCATIONAL QUALIFICATIONS

- Vocational Qualification in Dental Technology

Vocational Qualification in Dental Technology

The compulsory modules of the qualification are *activities in dental technology, basic tasks in the preparation of dental prostheses, preparation of full prostheses and preparation of partial prostheses*. One of the following optional modules must also be taken: *preparation of crowns and bridges, preparation of orthodontic devices and occlusal splints, dental practice functions*. The qualification title is Dental Laboratory Assistant.

Candidates must be familiar with the core contents of the acts, decrees and other statutes governing the service system of social and health care and steering the work of Dental Laboratory Assistants, as well as with the service system of oral health care. In their work, they must know how to apply knowledge of human anatomy, physiology, the physiology of mastication and morphology. They must be familiar with the basics of prosthetics and the basic concepts of oral health care and dentistry. They must be familiar with the clinical treatment of patients related to the preparation of works of dental technology and be able to perform the technical part of dental technology work together with a multidisciplinary dental care team. They must be familiar with the disinfection of prosthetic work and tools as well as with the chemical and physical disinfection and sterilisation methods and be able to prevent bodily, chemical and physical health risks and hazards. In all of their working phases, they must function aseptically and comply with occupational and customer safety requirements. They must work in accordance with quality standards in the field and with quality systems at their workplace. They must possess first aid skills equivalent to first aid level 1. They must know how to use computer software, information networks and information acquisition equipment related to their work. In addition to their native language, they must be able to communicate in the other national language or in some foreign language in situations occurring in their field and to interpret foreign-language professional publications.

Candidates must be familiar with the structures, properties and correct use of dental impression and plaster materials. They must know how to prepare plaster models, custom impression trays and baseplates in accordance with each order. They must command the use of the most common fixed and semi-adjustable articulators used in prosthetics. They must be familiar with the materials and properties of teeth used in prosthetics and know how to select, set and shape teeth in accordance with each individual order. They must know how to shape and finish the alveolar parts of prostheses. They must know how to perform flasking of partial and full maxillary and mandibular prostheses in the waxing phase. They must command the finishing tasks subsequent to polymerisation. They must know how to carry out technical repair, restoration and adjustment tasks to old partial and full prostheses. They must be familiar with the preparation process of partial prostheses with metal frameworks. In addition, they must command the skills and knowledge of their chosen optional module.

Those who have completed the qualification possess the skills to work as Dental Laboratory Assistants in oral health care services.

REHABILITATION AND SPORTS

VOCATIONAL QUALIFICATIONS

- Vocational Qualification in Physical Education

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification in Coaching
- Further Qualification for Masseurs/Masseuses
- Further Qualification in Physical Education
- Further Qualification in Sports Facilities Maintenance

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification in Coaching
- Specialist Qualification for Masseurs/Masseuses
- Specialist Qualification in Sports Facilities Maintenance

Vocational Qualification in Physical Education

The compulsory modules of the qualification are *physical training*, *physical education instruction in different operating environments* and *physical exercise and health*. Two of the following optional modules must also be taken: *instruction of children and young people*, *instruction in fitness and health-related exercise*, *instruction in special physical education*, *coaching*. The qualification title is Physical Education Assistant.

Candidates must command the essential exercises, exercise forms and movement developments of the most common forms of physical exercise and sports as well as their application. They must know how to plan, organise and implement complete programmes for different target groups to promote physical exercise and health as well as to instruct people in them, using instruction techniques and working methods suitable for each specific target group. They must be able to apply and differentiate physical exercise at individual and group levels, taking learning and instruction processes into account. They must function safely and responsibly and so as to promote sustainable development. They must be able to assess their activities in physical education instruction situations and be capable of accepting feedback.

They must express themselves clearly in their native language and be able to manage simple instruction assignments in the other national language and in one foreign language. They must be capable of assessing their opportunities as entrepreneurs in the field and marketing their organisations, products and business enterprises. They must take human anatomy and physiology into account in their actions and promote the condition of the musculoskeletal system. They must be able to provide customers with nutritional information, to survey working conditions and to convey information on ergonomically correct working methods. They must know how to plan an exercise programme in accordance with the general principles of coaching and provide instruction in exercises and coaching situations in a customer-focused manner.

They must be familiar with the most common test and practice methods for the physical properties of athletes and people who exercise for fitness and health. They must know how to assess, monitor and develop the physio-motor abilities and basic motor skills of children and young people. They must be familiar with social and health care services and be able to advise

people under their instruction on the use of these services. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification have the skills to instruct people of different ages in physical exercise, draw up personal physical exercise programmes and function in projects and campaigns related to physical education.

Further Qualification in Coaching

The common modules of the qualification are *coaching*, *sport-specific coaching* and *operating environments and competitions*.

Candidates must know how to analyse and develop their coaching work. They must command holistic athlete-centred coaching. They must understand the pluralism and ethical foundations of sports. They must command the basics of psychological coaching. They must possess the interaction and teamwork skills required by their work. They must be able to develop their self-knowledge and command the basics of teaching and learning. They must be aware of the basics of organ structures and their functions during physical exertion and recovery.

Candidates must understand the stages of motor development and learning and know how to make use of sensitive periods. They must command basic sports and their development. They must be familiar with the basics of nutrition and be able to provide athletes with nutritional guidance and take appropriate action in cases of disorders. They must be familiar with factors influencing health and know how to administer first aid and give instructions for treating the most common sports injuries. They must be able to maintain their own working ability and develop themselves.

Candidates must command the requirements of their sport and know its rules. They must command sport, team and athlete/player analysis. They must know how to plan and implement coaching. They must command different performance techniques and key tactics. They must know how to provide instruction in sport skills appropriate for each trainee's age and developmental phase. They must know how to test properties and results.

They must know how to make use of different types of auxiliary equipment and information technology. They must be familiar with their operating environment. They must be able to chart an athlete's overall situation and assist his or her support network. They must command the principles of economical thinking and entrepreneurship.

Candidates must be able to plan and prepare for competitions. They must know how to devise tactics and organise tasks properly during an event. They must be able to assess a competition performance correctly. They must know how to determine actions that will improve performance and keep it in line with the goals.

Those who have completed the qualification may work as national-level sports coaches in sports organisations.

Further Qualification for Masseurs/Masseuses

The common modules of the qualification are *basics of the massage profession*, *massage working methods*, *massage as a treatment* and *masseurs/masseuses as entrepreneurs*. Candidates must complete the first two modules to an acceptable standard before taking the third module.

Candidates must be familiar with the ethical principles of the health care and social service sector. They must be familiar with ethical recommendations for the health care sector as issued by the National Advisory Board on Health Care Ethics (ETENE).

They must be familiar with ethical principles for masseurs and masseuses. They must also be familiar with ethical principles guiding massage work and understand the significance of these ethical principles to the work carried out by masseurs and masseuses. They must be familiar with the key contents of laws, other statutes, guidelines and recommendations steering massage work and with the significance of these to their own work, while following changes in these.

Candidates must be familiar with operating environments in the health care, social services, sports and rehabilitation sectors and with the domains and duties of experts in the field. They must be able to describe the public and private sector service systems in general terms. They must be able to determine the status and job description of masseurs/masseuses in different operating environments within the social services, health care and rehabilitation sectors. They must understand masseurs' and masseuses' domains, responsibilities and duties within the social services, health care, sports and rehabilitation sectors. They must be able to assess their own competence and develop their own vocational skills.

Candidates must be able to reserve the implements and massage preparations that they need and know how to arrange the treatment area and the implements and preparations that they need in a sensible way in terms of their own working ergonomics and client safety and satisfaction.

Candidates must command aseptic and hygienic working methods. They must know how to attend to personal hygiene and tidiness. They must understand the significance of the tidiness of treatment facilities as part of client satisfaction and overall impact of massage. They must understand the importance of massage clients' privacy and know how to take it into account when providing massage services.

Candidates must command the structural and functional anatomy of the musculoskeletal system. They must know how to examine a client and record the results of the examination. They must command the basic strokes involved in massage and know how to administer superficial thermotherapies and cryotherapies. They must be familiar with the effects and possibilities of hydrotherapies as treatments in support of massage. They must know how to administer first aid and they must possess adequate interaction skills for their occupation.

Candidates must be able to deal with people in an individual and customer-focused manner and in compliance with the principles of professional ethics. They must know how to prepare personal massage plans for individual clients and know how to carry out massage in accordance with a massage plan. They must know how to instruct clients in treatment situations and to guide them towards continuous health promotion and healthy lifestyles.

Candidates must be familiar with the contents of laws, other statutes and guidelines steering massage entrepreneurship and with the significance of these to their operations. Candidates must be acquainted with the characteristics and skills needed in business operations.

Those who have completed the qualification may work as entrepreneurs or as employees in various communities within the social services and health care, sports and wellness sectors. The work is carried out in a variety of working environments, such as social and medical institutions, service housing units, spas, sports centres, clients' workplaces and homes.

Further Qualification in Physical Education

The qualification comprises all modules of one of the following competence areas.

The modules of the competence area in exercise for adults are *management of the operating environment, health-promoting exercise, exercise instruction for adults and entrepreneurship*. The modules of the competence area in exercise for children are *management of the operating environment, health-promoting exercise, exercise instruction for children and entrepreneurship*. The modules of the competence area in sports and activity services are *management of the operating environment, health-promoting exercise, exercise instruction, entrepreneurship and provision of sports and activity services*. The modules of the competence area in sports club activities are *management of the operating environment, health promotion in sports clubs, exercise instruction and coaching in sports clubs and entrepreneurship*.

Candidates must be familiar with and able to justify the social significance of physical exercise. They must be familiar with the infrastructure relating to sports and exercise and the prerequisites of a good exercise environment. They must possess sufficient oral and written presentation skills. They must be familiar with the safety requirements of sports facilities and insurance practices involved in supervised exercise. They must be able to co-operate with different groups. They must have adequate command of information technology. They must command the basics of project management.

Candidates must be able to obtain information about physical exercise needs and draw up a health-promoting exercise plan. They must know how to guide, monitor and assess the health effects of physical exercise. They must be able to justify the physical, mental and social effects of physical exercise. They must be able to assess and develop their own vocational skills. They must know how to support customers in self-motivated physical exercise and plan and implement exercise in a work-based and customer-focused manner.

Candidates must know how to instruct people in the most common forms of physical activity and sports and performance techniques in a safe, appropriate and diverse manner. They must command different sports gear and equipment. They must be familiar with the principles of learning and teaching. They must take the needs, abilities and limitations of each special needs group into account.

Those who have completed the qualification may work in various organisations, businesses, associations, projects and campaigns and as independent entrepreneurs within the sports and leisure sector and health care and social services.

Further Qualification in Sports Facilities Maintenance

The common modules of the qualification are *maintenance of sports facilities and customer service, command of building and equipment technology, maintenance of summer sports facilities, maintenance of winter sports facilities and maintenance of indoor sports facilities*.

Candidates must be familiar with different sports and with their training and competition conditions. They must be able to maintain different sports facilities independently, also taking the requirements of special needs groups into account. They must be able to prepare work plans according to different weather conditions. They must be able to function in groups. They must be familiar with terms and conditions of employment and with occupational health and safety issues and work ethically and in compliance with health-promoting principles. They must be able to manage customer service and understand the significance of entrepreneurship and

co-operation. They must be able to work in a cost-aware manner.

Candidates must know how to maintain and repair building and surface materials and structures. They must be familiar with different coatings and know how to maintain these. They must know how to measure and mark out sports facilities. They must know how to use and service machinery and equipment. They must know how to maintain sports facilities, storage, working and service areas, sports equipment and areas. They must know how to use and adjust the technical equipment at sports facilities.

Candidates must know how to maintain grass pitches, athletics fields, ballparks, swimming beaches, cross-country and water sports areas and command related functions, guidance and instruction.

Candidates must know how to maintain cross-country skiing tracks and grounds, local exercise environments, ski slopes, ski-jumping facilities, ice-hockey rinks and skating areas.

Candidates must know how to maintain indoor and outdoor swimming pools, sports halls, ice stadiums and gyms for sports, gymnastics and fitness training and command related customer services.

Those who have completed the qualification may work as sports facilities maintenance operatives employed by local authorities and business enterprises.

Specialist Qualification in Coaching

The common modules of the qualification are *developing as a coach*, *management of the operating environment* and *coaching skills*. In addition, two of the following modules must also be chosen: *sport-specific coaching work*, *sport-specific coaching organisation work* and *entrepreneurship*.

Candidates must be able to assess their own emotions in coaching. They must be able to work with empathy, being open, encouraging and capable of winning the confidence of those they are coaching. They must recognise the values and conception of humanity underlying their own work and their own operating methods and philosophy. They must be able to act ethically, morally and responsibly. They must take an active role in drawing up coaching contracts.

Candidates must be able to seek and use information. They must be able to recognise changes in the world of work. They must be familiar with the Employment Contracts Act and collective agreements. They must take responsibility for development of their own vocational skills and their field. They must command information technology as required in the field. They must take their own well-being and use of time at work into account.

Candidates must be aware of the significance of their own role as developers of their working environment and community. They must be familiar with sports culture, Finnish sports and funding systems and decision-making processes. They must be able to identify duties and responsibilities within their operating environment. They must be familiar with the decision-making process influencing sports conditions. They must be familiar with the Finnish coaching culture, their own role as part of it and its development opportunities. They must command the general elements of coaching and be familiar with different coaching methods, means of solving problems and the teaching process. They must be able to function in different interactive situations. They must be able to lead coaching work according to objectives. They must possess sufficient language and first aid skills. They must take each athlete's individuality and sexual orientation into account. They must command methods of monitoring training.

Those who have chosen the sport-specific coaching module must be familiar with the phases

of their sport and the sports careers of those they are coaching. They must be familiar with the requirements of the sport, its performance requirements, techniques and training methods. They must know how to use and maintain competition and training equipment. They must know how to prepare for competition events and command competition tactics and target results. They must be able to interact appropriately with the media. They must be familiar with sports injuries and methods of corrective training. They must know how to develop coaching.

Those who have chosen the sport-specific coaching organisation work module must be familiar with the phases and developments of the sport. They must be able to lead coaching of the sport systematically. They must be capable of developing education and research and of co-operating with coaching institutions and experts. They must command contractual techniques and be aware of the binding nature of contracts. They must know how to provide new employees and students with instruction and orientation and to assess their vocational skills. They must know how to market their sport. They must be capable of following the finances of their organisation.

Those who have chosen the entrepreneurship module must be able to assess their business idea. They must be aware of the options available for entrepreneurship and setting up a business. They must understand the significance of marketing and financial management.

Those who have completed the qualification may work as coaches and in coaching management, planning and training assignments for sports federations, sports organisations, educational institutions and sports clubs or as independent entrepreneurs.

Specialist Qualification in Sports Facilities Maintenance

The common modules of the qualification are *attendance to exercise conditions*, *economic activities* and *supervisory work*.

Candidates must be able to plan sports facilities maintenance and organise it in accordance with the needs of user groups. They must know how to supervise customer service, recognising problem situations and co-operating with their working community. They must possess sufficient language skills to provide customer service.

Candidates must take responsibility for maintenance machinery and equipment. They must attend to safety. They must be familiar with the properties and dimensions of the most common basic sports facilities and the requirements of different sports. They must know how to equip sports facilities for use in training and competitions. They must be familiar with requirements set by special needs groups for sports facilities and know how to improve the conditions of such groups for physical exercise. They must be familiar with safety regulations and recommendations and know how to draw up safety documentation. They must be able to draw up co-operation agreements with event organisers. They must know how to provide information about physical exercise and sports facilities for users and the media and to market sports facilities. They must know how to improve the functions of sports facilities by following developments in different sports as well as in machinery and equipment used at sports facilities. They must be able to function as experts in construction of sports facilities.

Candidates must be able to plan and organise sports facilities maintenance in a purposeful and economical manner. They must be familiar with the principles of the capital finances, investments, movable property acquisitions and operating finances of sports facilities. They must be familiar with economic structures and funding systems. They must be able to assess

their own work and working methods and those of their working community. They must understand the basics of entrepreneurship and command business co-operation. They must have adequate command of information technology.

Candidates must command human resources planning and know how to recruit personnel. They must be familiar with the private and public sector collective agreements governing their field and with laws and other agreements required in supervisory work. They must be able to provide induction, instruction and guidance for personnel. They must command practical supervisory and management skills. They must know how to develop and train personnel and themselves.

Those who have completed the qualification may work for local authorities or private sports facilities enterprises in the field's supervisory positions.

Specialist Qualification for Masseurs/Masseuses

The common module of the qualification is *development of customer service, marketing and massage*. In addition, three of the following modules must also be taken: *massage practitioners as promoters of health and well-being, pain relief, maintenance and promotion of joint functions, sports massage, lymph therapy and relaxation therapies in massage work*. Successful completion of the qualification requires competences of trained masseurs/masseuses equivalent to the level of the Further Qualification for Masseurs/Masseuses, five years of work experience and supplementary and advanced studies.

Candidates must command professional interaction in customer service situations. They must be familiar with the psychology of customer service and know how to act in practical terms. They must be able to function within their working community and occupational networks. They must be able to function as experts in their own work in different working and care teams within the health care and social services, sports and wellness sectors. They must also be capable of acting as team leaders, workplace orientation facilitators, workplace instructors and as assessors of the vocational skills of masseurs/masseuses. They must understand the requirements of ethically sustainable entrepreneurship. They must know how to market their work and their business.

Candidates must attend to improving the quality of their own work and to their own well-being. They must know how to administer first aid equivalent to the level of the first aid 1 course.

Candidates must have thorough command of pain relief, lymph therapy, sports massage and relaxation therapies, depending on their chosen modules. They must be able to create a safe and open therapeutic relationship. They must be capable of assessing the functional capacities of sick and disabled clients, of promoting these with their treatment and of drawing up individual massage plans. They must know how to provide guidance and advice for rehabilitation, self-motivated exercise and selection of technical aids.

Candidates must command anatomy and the functions of the lymphatic system, know about nourishment and fluid balance, understand the effects of pharmaceuticals and performance drugs and know how to use various types of equipment and machinery for treatments.

Those who have completed the qualification may work as self-employed people or as employees in various communities within the health care and social services, sports and wellness sectors.

TECHNICAL HEALTH SERVICES

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification in Optical Mechanics
- Further Qualification in Equipment Maintenance

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification in Equipment Maintenance

Further Qualification in Optical Mechanics

The modules of the qualification are *basics of optometry, spectacle lens production, spectacle lens edging, specialised edging work, spectacle repairs and equipment maintenance* and *the order-to-spectacles process*.

Candidates must be able to comply with existing standards and tolerances and they must command terminology used in the optical industry and the basics of the physiology and anatomy of vision. They must be able to work in accordance with agreements in place within their working community and comply with the industry's codes of ethics and legislation.

Candidates must understand factors influencing the power of a lens. They must understand the significance of measured values to the final power of a lens and know how to use lens power measuring instruments properly. They must know how to ensure consistency between an order and the delivery.

Candidates must know how to calculate and measure the effects of lens fitting on the end result from the user's perspective. They must be familiar with different measurement systems. They must know how to handle various frame and lens materials, use correct tools and equipment and perform daily servicing measures on these. They must know how to use information technology related to machinery used for production of spectacles.

Candidates must know how to grind the edges of spectacle lenses, carry out specialised edging assignments, repair spectacles and service equipment. They must be able to assess and develop their work performance and quality.

Those who have completed the qualification may work in production of spectacles within optician's shops, lens edging departments or lens factories.

Further Qualification in Equipment Maintenance

The common modules of the qualification are *knowledge of the overall equipment maintenance process, cleaning and disinfection, packing, sterilisation, information technology* and *production control*. In addition, it is also possible to take the *entrepreneurship* module.

Candidates must be familiar with the equipment maintenance process as a whole and understand its significance and requirements. They must understand their own role in the quality of the equipment maintenance and production process and in service provision. They must be familiar with the service concept and command service situations, acting in a customer-focused manner. They must be capable of co-operation and command the key principles of clear communication, being able to justify their actions with reliable information and consult other experts. They must command instruction, guidance and induction work. They must know how to assess and develop

their own work performance and accept instruction and guidance. They must comply with the acts, decrees, official instructions, data security requirements, occupational safety instructions and bulletins governing their field and work ethically and to a high quality standard. They must be capable of planned, aseptic and responsible work.

Candidates must know how to clean and disinfect equipment in the proper sequence, using appropriate methods and substances. They must take care of the tidiness of their working environment, personal hygiene and appropriate clothing. They must know how to handle equipment and be familiar with the servicing and operating principles of machines and devices. They must command special situations and the principles of waste management. They must be capable of providing advice and guidance for customers, colleagues and students. They must be able to assess and document their own work.

Candidates must comply with rules governing packing work. They must be able to identify surgical instruments and equipment. They must know how to dry, inspect and service equipment, assemble the equipment and packages and pack it. They must know how to sort equipment for sterilisation and packing. They must be familiar with self-produced products and production materials.

Candidates must be able to select the correct sterilisation method and device. They must be familiar with the operating principles and maintenance of the most common sterilisation devices. They must be able to check the functionality and sterilisation power of steam autoclaves. They must know how to load the device and control the sterilisation process and check, sort and store sterilised products.

Candidates must know how to control production in co-operation with the customer and working community. They must know how to inspect and control incoming goods and command the principles of stock control and accounting. They must know how to trace products. They must be able to use information technology in their work.

Those who have completed the qualification may work in equipment maintenance assignments for care organisations in the social and health care sector, for pharmaceutical factories and for the food and chemical industries.

Specialist Qualification in Equipment Maintenance

The common modules of the qualification are *supervision and organisation of work; prevention of infections; workplace guidance, orientation and instruction in equipment maintenance and planning and development of equipment maintenance*. In addition, all candidates may also take the *entrepreneurship* module.

Candidates must know how to supervise equipment maintenance work in compliance with the principles of the field and the code of hygiene practice. They must know how to supervise equipment maintenance work and finances responsibly. They must know how to manage customer and partner relationships, processes and staff. They must be able to justify their solutions and to develop and assess their own work, actions and competence. They must be able to clarify the current status of their occupational field and assess its development trends. They must know how to use information technology and possess manual skills required at work.

Candidates must be familiar with statutes, recommendations and control systems steering prevention of infections and aseptic work. They must understand the significance of the environment to infections and know how to take action in various situations.

Candidates must command and be able to assess workplace instruction, orientation and

guidance in equipment maintenance work. They must be familiar with statutes and recommendations governing the field as well as with key labour legislation.

Candidates must know how to develop customer service situations, processes and cost-awareness. They must be able to design and maintain a safe working environment. They must know how to develop their own work systematically. They must know how to launch development projects, monitor their progress and assess the quality and results of activities.

Those who have chosen the entrepreneurship module must be familiar with the requirements of and opportunities involved in setting up and running a business.

Those who have completed the qualification may work in assignments requiring specialised competence in equipment maintenance within the social and health care sector, for pharmaceutical factories and for the food and chemical industries.

PHARMACY AND OTHER PHARMACOLOGICAL SERVICES

VOCATIONAL QUALIFICATIONS

- Vocational Qualification in Pharmaceutics

Vocational Qualification in Pharmaceutics

The compulsory modules of the qualification common to all are *knowledge of the pharmaceutical field, office work and command of information technology, basic skills in handling and preparation of pharmaceuticals and medical logistics*. The compulsory module of the Study Programme in Pharmacy Services (Pharmaceutical Technician) is *pharmacy work*. One of the following optional modules must also be taken: *quality work in the Pharmaceutical Assistant's work, display and marketing, command of information technology*. The compulsory modules of the Study Programme in Pharmaceutics (Pharmaceutical Assistant) are *preparation of pharmaceuticals, drug development and pharmaceutical wholesale business*, one of which must be taken. One of the following optional modules must also be taken: *quality work in the Pharmaceutical Assistant's work, display and marketing, command of information technology*.

Candidates must possess extensive basic skills in office work and information technology for different assignments within pharmaceutical services. In addition, they must possess specialised competence and vocational skills required by working life in one of the following compulsory modules included in one of the study programmes within the qualification: pharmacy work, preparation of pharmaceuticals, drug development or pharmaceutical wholesale business.

Those who have completed the Vocational Qualification in Pharmaceutics know how to work ergonomically and maintain their working and functional abilities. They must know how to work on projects and in teams, while also being capable of working independently and acquiring information even from foreign-language sources. They must be active and use their own initiative and they must be continuously willing to learn new things.

They must take into account the provisions laid down in the Medicines Act. They must know how to exploit their knowledge of the biological stages of drugs in the organ system, be familiar with life-cycle thinking in drug development and be able to justify the price formation of pharmaceuticals. They must be familiar with factors influencing quality and know how to use quality systems at their workplace. They must know how to treat, sort and dispose of waste generated at work in accordance with instructions. They must possess first aid skills equivalent to first aid level 1. They must know how to price products, prepare documents for accounting and attend to calculation and accounting duties.

When preparing pharmaceuticals under pharmaceutical supervision, candidates must act in accordance with the legal norms governing the preparation of pharmaceuticals. They must be able to independently prepare facilities and equipment for aseptic preparation of pharmaceuticals. They must know how to handle raw materials, packing materials and pharmaceutical waste in an appropriate manner. They must command the use of basic tools and the basic methods in the preparation of pharmaceuticals. They must comply with the working methods and hygiene required by the cleanliness class applicable to the preparation of pharmaceuticals. They must know how to sterilise equipment and raw materials, store sterilised products and document the sterilisation process. They must know how to receive and check incoming deliveries and classify

products of different groups safely and correctly with the aid of package labelling. They must know how to use the stock control system and also to store products requiring special handling. They must know how to place orders for products manually, over the telephone and by means of electronic communications. They must command the commercial presentation of products in sales facilities. In addition, they must command the skills and knowledge required for pharmacy work, preparation of pharmaceuticals, drug development or the pharmaceutical wholesale business, depending on their chosen specialisation area.

Those who have completed the qualification possess extensive basic skills for different assignments in pharmaceutical services and, in addition, specialised competence and vocational skills required by working life in one sector of the qualification.

BEAUTY CARE

VOCATIONAL QUALIFICATIONS

- Vocational Qualification in Hairdressing
- Vocational Qualification in Beauty Care

FURTHER VOCATIONAL QUALIFICATION

- Further Qualification in Hairdressing

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification in Hairdressing
- Specialist Qualification in Beauty Care

Vocational Qualification in Hairdressing

The compulsory modules of the qualification are *cosmetic care, hair cutting and styling, perming and dyeing treatments, entrepreneurship in hairdressing, hairdressing* and *barber's work*. The qualification title is Hairdresser.

Candidates must possess the knowledge of the anatomy and physiological functions of skin and hair required in the cosmetic treatment of hair and the capacity to determine the quality and condition of a customer's hair and scalp. They must recognise scalp and hair diseases and be able to guide the customer in habits and choice of care products that are healthy for the hair. They must be able to select and use hair washing and care products and care methods and to justify their choices on the basis of their ingredients and operating principles. They must be able to massage the scalp and perform manicures. In the planning of cutting and styling, they must take account of each customer's wishes and personality and the principles of morphology and chromatics. They must be able to style hair and trim beards by cutting, to shave beards and to select the methods, tools and techniques suitable for each assignment.

They must be able to design, outline and implement hairstyles for female and male customers for different purposes. They must command the most common cosmetics products, implements and techniques used for perming hair and know how to perm hair using curling and straightening methods. They must be able to dye hair and beards and to apply the principles of chromatics to mixing dyes. They must be able to bleach hair, to remove dyes from hair and to highlight hair using a variety of techniques. They must work ergonomically, economically, hygienically and in accordance with occupational safety requirements. They must be able to market their own work and the business enterprise's services and the products and equipment used in the field. They must be familiar with the alternative ways of setting up a business enterprise, financing possibilities, liabilities, taxation and bookkeeping and be able to draw up the foundation documents of an enterprise. In their work, they must be able to make use of information technology. They must work in a service-oriented and customer-focused manner and be able to deal with service situations in both national languages and one foreign language.

Those who have completed the qualification possess extensive skills to work in assignments related to customer service, advice, sales and marketing in the hairdressing sector as employees or as self-employed people.

Vocational Qualification in Beauty Care

The qualification comprises the modules common to all of *basic skin care, specialist skin care, skin care guidance, make-up* and *beauty care entrepreneurship*. One of the following optional modules must also be taken: *massage and therapy methods, methods of highlighting make-up, sales and marketing*. The qualification title is Beauty Therapist.

Candidates must be able to plan and implement facial, body, manicure and pedicure treatments and make-ups for customers of different ages and backgrounds according to their preferences and needs and to combine treatments with massage where necessary. They must be able to guide customers in the use of colours, in discovering personal styles and in self-care of the skin and body and in the choice of skin care products and their use. They must possess the knowledge of hygiene, human anatomy and physiology, skin structure and its functioning and nutrition and skin diseases, as required in the occupation. They must possess the knowledge of cosmetics products and ranges, cosmetics ingredients and various skin care methods and equipment and of their effects on the skin and body, as required for marketing treatments and products.

They must be able to apply their customer service and interactive skills in treatment, guidance, sales and co-operation situations. They must be able to deal with customer service in both national languages and one foreign language. They must be able to arrange customer events and to present their business clearly and competently. They must be able to price the services and products that they sell and to market products, equipment and services. They must be familiar with alternative ways of setting up a business enterprise, financing possibilities, liabilities, taxation and book-keeping and be able to draw up the foundation documents of a business enterprise. In their work, they must be able to make use of information technology. In addition, they must command the skills and knowledge of their chosen optional module.

Those who have completed the qualification possess extensive skills to work in beauty care customer service, advice, sales and marketing assignments as employees or as self-employed people.

Further Qualification in Hairdressing

The compulsory modules of the qualification are *growth and development of hairdressers, individual day-to-day and festive styling schemes for men and women, individual day-to-day and festive styling schemes for long hair, entrepreneurship and workplace instruction*. In addition, one of the following modules must be selected: *special hair and scalp care, individual styling schemes for men and women using added hair, development or expansion of business operations*.

The *development and growth of hairdressers* module must be completed to an acceptable standard before any other modules can be taken. In addition to their native language, candidates must take speaking and speech comprehension tests in one foreign language at skills level 2.

Candidates must act in a responsible and customer-focused manner and to a high quality standard in different hairdressing assignments as employees or entrepreneurs. They must be able to produce high-quality results, using substances and equipment economically, while also attending to occupational health and safety. They must be able to work in teams and command customer service skills. In addition, they must know how to make their working environment safe and pleasant, complying with good working practices.

Candidates must be able to justify the decisions and choices made at work with vocational knowledge. Improving the quality of work requires the ability and desire for continuous assessment of one's own actions and development of vocational skills.

Candidates must understand changes in their own work in relation to other changes in society. They must be able to analyse changes in the culture of the hairdressing field. They must be acquainted with human psychology and comprehensive and diverse understanding of human essence.

Candidates must be able to recognise each customer's style, collect the necessary information and draw the necessary conclusions as well as provide guidance for customers. They must know how to market treatments and products in a knowledgeable manner. They must know how to design, justify and implement dyeing, perming, cutting and styling tasks, beard styling and makeups. They must be able to determine the quality, condition and previous treatments of hair and scalp. They must be capable of using various substances, methods and techniques.

Candidates must be able to design and analyse a hairstyle change assignment, taking account of its effectiveness and appropriateness, customer satisfaction and impact, experiences of and personal attitudes towards hairstyle changes and development of vocational skills.

Candidates must be capable of self-assessment in their work. They must be able to use their time in a profitable manner and be capable of developing their own actions. As entrepreneurs, they must be able to make financial decisions and develop their business operations.

Those who have completed the qualification may work as independent self-employed people or as employees. They also have the opportunity to function in supervisory positions. In addition, jobs are available at salons, spas, hospitals and service housing units as well as on cruise liners and at customers' homes, but also within the theatre, photography, cinema and television fields. Those who have completed the qualification may also work in sales, consultancy and training assignments for business enterprises, stores, importers and wholesale firms.

Specialist Qualification in Hairdressing

The common modules of the qualification are *workplace instruction and orientation*, *development of business operations* and *development of the hairdressing field*. One option must also be chosen from the *production of business-profiling services* module. Options include *makeup*, *hairpieces* and *personal image services*. In addition, candidates must select one or both of the following specialisation areas of the qualification: *specialist hairdresser* or *specialist barber*. One of the following modules must also be selected: *competition coaching*, *competing*, *production of hairdressing events* and *training*.

Candidates must be able to design and implement a learner-focused workplace instruction programme. They must be aware of various conceptions of learning and humanity. They must be able to draw up a written orientation plan, familiarise trainees with the working community and assess trainees' work and their own actions.

Candidates must be able to assess the situation of the business and the hairdressing field and to develop operations by making use of experts, networks and stakeholders in the field.

Candidates must know how to make a customer analysis and design and implement makeups, hairstyles using added hair or personal image services.

Candidates must be able to act like professional specialist hairdressers or specialist barbers, depending on their chosen specialisation area. They must know how to design and implement a

styling scheme suitable for each customer. They must command customer service and must also be capable of functioning in one foreign language in addition to their native language. They must take occupational safety legislation and product instructions into account and attend to well-being at work.

Candidates must be able to design and implement an event or competition assignment in their chosen module. They must be able to assess their own work and to benefit from the feedback that they receive.

Those who have completed the qualification may work as independent self-employed people, entrepreneurs or employees of small enterprises, salons, spas, hospitals, service housing units and cruise liners and at customers' homes. They may also function in supervisory assignments and as workplace instructors.

Specialist Qualification in Beauty Care

The five compulsory modules of the qualification are *growth and development as a beauty therapist, aromatherapy and essential oils in beauty care, forms of supplementary skin care, special cosmetic skin treatments* and *entrepreneurship and enterprise*. Two of the following optional modules must also be taken: *manual lymph massage for the face, manual lymph massage for the body, classical zone therapy in health promotion, expert co-operation in skin care for plastic surgery customers, therapeutic and aesthetic use of colours*.

Candidates must be familiar with various therapeutic philosophies and the culture of beauty care. They must possess an in-depth knowledge of comprehensive skin care. They must command the service process and be able to compile a customer-focused serial beauty care plan that combines different forms of skin care. They must work in an ergonomic, quality-conscious and ethical manner. They must be able to perform aromatherapy as a method of care and be familiar with essential oils and the principles of mixing them. They must be able to plan and provide aromatherapy for customers and to assess its effects. They must command at least one supplementary form of care influencing the equilibrium and well-being of the body and skin. In addition, they must command at least two new care devices and product ranges and the specialist techniques of either permanent pigmentation or diathermy. They must be able to analyse their entrepreneurial skills and demonstrate that they possess the skills and knowledge required in entrepreneurial activities. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification may work in expert positions related to skin care and skin care guidance that require extensive and diverse vocational skills.

TOURISM, CATERING AND DOMESTIC SERVICES

TOURISM

VOCATIONAL QUALIFICATIONS

- Vocational Qualification in the Tourism Industry

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification in Rural Tourism
- Further Qualification in Tourism Activities
- Further Qualification for Tourist Guides
- Further Qualification in Travel Services

Vocational Qualification in the Tourism Industry

The compulsory module common to both competence areas of the qualification is *tourism services*. The compulsory module of the competence area in tourism sales and information services (Travel Counsellor) is *information acquisition and communications in tourism*. One of the following optional modules must also be taken: *selling tourism and transport services, sales and information services in domestic tourism*. The compulsory module of the competence area in tourism activities (Tourism Activities Organiser) is *production of tourism activity services*. One of the following optional modules must also be taken: *functioning in an activity service enterprise, functioning at a tourist centre*.

Candidates must be acquainted with tourism both as a livelihood and as a leisure activity, with general trends in tourism and with the networks and organisations of the Finnish tourism business and be able to work in a networked environment. In their work, they must take account of the enterprise's business idea and the requirements of profitability. They must be able to perform the main office duties of a tourism enterprise and assess and develop their work. They must serve various customers and customer groups in an active, responsible, customer-focused and service-oriented manner.

Candidates must be able to deal with the basic tasks of a small accommodation service enterprise. They must be able to plan and implement an activity service package suitable for their own area, which takes the principles of sustainable development into account. They must be able to deal with the most common customer service situations in both national languages and one foreign language.

Tourism Activities Organisers must be able to work in different tourism enterprises in assignments involving the production of practical activity services and complementary catering and accommodation services.

Travel Counsellors must be able to work in tourist information, sales and customer service assignments and to book and sell various tourism service packages.

Those who have completed the qualification are equipped to work in customer service assignments within the tourism industry according to their chosen competence area.

Further Qualification In Rural Tourism

Candidates may specialise as rural tourism entrepreneurs or employees of rural tourism enterprises.

The common modules in the specialisation for **rural tourism entrepreneurs** are *entrepreneurship* and *marketing*. In addition, one of the following modules must be taken: *accommodation services*, *catering services* or *activity services*.

Candidates specialising as **employees of rural tourism enterprises** must select three of the following modules: *accommodation services*, *catering services*, *activity services* or *entrepreneurship*.

Depending on their chosen modules, candidates must know how to organise appropriate and pleasant accommodation according to each specific target group. They must be familiar with quality classification systems used in rural tourism. They must know how to implement cleaning plans and maintain the required standard of hygiene and cleanliness. They must be able to plan and implement catering services for individual companies and different occasions. They must command the use of raw ingredients, special dietary requirements and presentation of meals and serving procedures.

Candidates must know how to plan and implement various activity services suitable for natural and rural environments or rural culture, lead their groups safely and function in guiding situations. They must be able to recognise customer needs and act in a customer-focused manner, also handling customer service situations in a language other than their mother tongue. They must command safe use of machinery, equipment and tools used in the field.

Candidates must be able to develop services and their own actions and understand the responsibilities of a service provider. They must be familiar with and comply with statutes and regulations relating to safety, hygiene, environmental issues and other operations in the field. They must know how to network and co-operate and use information technology in their work.

In addition, rural tourism entrepreneurs must be familiar with the prerequisites of entrepreneurship and command the basic business and marketing processes. They must know how to commercialise and develop an enterprise-specific business idea.

In addition, those working for rural tourism enterprises must be able to commit themselves to acting in accordance with the enterprise's business idea and know how to act in an entrepreneurial manner.

Those who have completed the qualification may function as full- or part-time rural tourism entrepreneurs or employees of such enterprises.

Further Qualification in Tourism Activities

The qualification comprises the competence area for activity service providers and the competence area for event organisers.

The modules in the competence area for activity service providers are *planning of activity services*, *business planning and marketing of activity services* and *sales and implementation of activity services*.

The modules in the competence area for event organisers are *event planning* and *production and implementation of events*. In addition, candidates taking either competence area may also select the *entrepreneurship* module.

Candidates must be aware of the significance of tourism and the operations of their business enterprise. They must be able to make use of their own competence and knowledge of the operating environment. They must be able to co-operate with different parties. They must know how to brainstorm and commercialise their services to create profitable and high-quality products and market these to the right target groups. They must be able to deal with responsibilities and be aware of official regulations, instructions and recommendations. They must know how to draw up agreements and other documents. They must be able to assess their own activities realistically.

Candidates must be familiar with the basics, risks and opportunities of business activities. They must command cost and margin accounting and pricing. They must be able to deal with measures required by business finances. They must know the market, know how to draw up marketing materials and make use of information technology.

Candidates must know how to sell activity/event services and tailor these according to each customer. They must be able to implement services safely and according to plans. They must be familiar with gear and equipment. They must understand the significance of flexible customer service. They must have adequate command of languages. Where necessary, they must know how to lead and control a group and be capable of taking rapid decisions and actions.

Those who have completed the qualification may work as activity service providers and event organisers within enterprises, associations, foundations, tourist centres, municipal tourism services or as independent entrepreneurs.

Further Qualification for Tourist Guides

The compulsory modules of the qualification are *general knowledge of and information services in the tourism industry* and *preparation and implementation of guide assignments*. One of the following alternative modules must also be taken: *functioning as a guide in local and domestic resorts, functioning as a tour leader, functioning as a guide in international resorts*. In addition, one of the following optional modules must also be taken: *use of languages in guide services, functioning as a specialised guide, entrepreneurship, a module of some other further qualification*.

Candidates must be familiar with the basics of the tourism industry as well as with the organisations, authorities and other co-operation partners operating in the field. They must possess good knowledge of areas and products. They must be aware of the key transport and accommodation services, complementary and accessory services as well as of the products and provider organisations of these services. They must be familiar with consumer protection in the industry, the key contracts and regulations related to tour operating activities as well as the terms of travel insurance policies. They must possess cultural and geographical know-how and knowledge of the attractions of different regions. They must be well acquainted with the economic life, history, nature, sport and cultural attractions and events in the area of their own guide activities and in Finland. In their work, they must know how to utilise written and electronic reference books and data bases.

Candidates must know how to plan their guide services to form clear and themed tours. In the planning and implementation of guided tours, they must take safety and environmental issues into account. They must know how to market, sell and price guide services. They must command guiding and advisory situations and leading groups. In their work, they must take the cultural backgrounds of customers into account. They must also be able to handle service

situations in a foreign language. They must be able to assess their own work and exploit feedback. In addition, they must command the skills and knowledge of their chosen modules.

Those who have completed the qualification may work as local and resort guides, specialised guides and tour leaders for both business and leisure tourists in Finland or abroad.

Further Qualification in Travel Services

The common module of the qualification is *sales and arrangement of tourism services*. One of the following optional modules must be taken: *functioning as a general travel agent, functioning as a business travel consultant*. In addition, one of the following modules must be taken: *organisation of group travel, attendance to meeting and congress arrangements, pricing of international flight tickets, language skills in customer service, entrepreneurship, a module of some other further qualification*.

Candidates must be familiar with the economic structure, forms of enterprise, special business characteristics, organisations and authorities in the tourism industry. They must be familiar with the key transport, accommodation, complementary and additional services as well as with the organisations providing them. They must possess diverse knowledge of products as well as competence in prices and pricing. They must command the sales and distribution systems of tourism services as well as the use of different reservations systems. They must be familiar with the key co-operation partners and must also be capable of communicating with foreign partners. They must possess good knowledge of tourism geography and they must be capable of telling customers about the location, culture, customs, attractions and distinctive characteristics of each destination area. They must be able to exploit printed and electronic sources of information about the tourism industry. They must possess extensive knowledge of the products and providers of leisure tourism needed by general travel agents. Alternatively, they must possess thorough knowledge of products and services intended for business travellers required in assignments as business travel consultants. In addition, they must command the skills and knowledge of their chosen optional module.

Those who have completed the qualification are competent in travel agency services and may work as general travel agents, business travel consultants or in specialist positions in the field.

HOTEL AND CATERING

VOCATIONAL QUALIFICATIONS

- Vocational Qualification in Catering
- Vocational Qualification in Hotel and Restaurant Services

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification for Cooks, Institutional Catering
- Further Qualification for Hotel Receptionists
- Further Qualification in Restaurant Cookery
- Further Qualification for Waiters/Waitresses

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification for Bartenders
- Specialist Qualification for Dietary Cooks
- Specialist Qualification for Foods Managers
- Specialist Qualification for Hotel, Restaurant and Catering Service Managers

Vocational Qualification in Catering

The compulsory modules common to both competence areas of the qualification are *kitchen functions in the catering field* and *customer service in the catering field*. The compulsory modules of the competence area in institutional meal production (Cook, Institutional Catering) are *institutional meal production* and *preparation of dishes for private and themed functions*. The compulsory modules of the competence area in catering and customer services (Service Organiser) are *service and sales functions in the catering field* and *private catering and delivery services*. In addition, two of the following optional modules must also be taken: *banqueting services, café and fast-food services, meals services at a customer site*.

Candidates must work in accordance with the mission statement and procedures of their workplace and be familiar with its services as a whole. They must be familiar with official nutritional recommendations and be able to apply them in their work.

Candidates must be able to prepare the most common dishes served in institutional catering as team members and to independently bake breads and pastries from raw frozen products and prepare the most common products baked in institutional kitchens. They must be able to arrange the serving and sale of meals and drinks and to present products to customers. They must be able to serve customers in both national languages and one foreign language.

Cooks, Institutional Catering, must command the manual skills and technology required in cookery and be able to prepare good food economically and in a customer-focused manner. They must be familiar with the most common special diets, national culinary culture and the culinary culture of ethnic groups residing in Finland.

Service Organisers must be able to take orders, pack and sell meals and portions and command distribution logistics. They must be able to attend to serving at conferences and for guests and be familiar with the most common special diets and with national and international culinary and drink cultures.

Those who have completed the qualification possess diverse skills for meal production,

customer service and distribution assignments in different types of institutional kitchens and in companies providing catering services.

Vocational Qualification in Hotel and Restaurant Services

The compulsory module common to all three competence areas of the qualification is *basic hotel and restaurant services*. The compulsory modules of the competence area in hotel services (Hotel Receptionist) are *hotel, restaurant and meeting services* and *hotel reception functions*. The compulsory modules of the competence area in restaurant meal production (Restaurant Cook) are *restaurant kitchen functions* and *preparation of restaurant dishes*. The compulsory modules of the competence area in restaurant services (Waiter/Waitress) are *hotel, restaurant and meeting services* and *restaurant dining room functions*. In addition, two of the following optional modules must also be taken: *banqueting services, café and fast food services, staff restaurant functions, restaurant speciality food functions, sales and congress services, ship catering services*.

Candidates must be able to act in accordance with the business idea and operating guidelines of the hotel and restaurant sector and their business enterprise. They must deal with their own contribution to sales and service situations in a smooth, service-oriented and proactive manner. They must act according to the safety regulations related to customer, staff, fire and property safety and information security. They must be able to provide assistance in tasks outside their own competence area. They must be aware of the effects of their own work on the profitability of the business enterprise and be able to interpret key ratios. They must be able to obtain information from a variety of information acquisition media and to assess their own competence.

Hotel Receptionists must be able to manage the routine tasks of hotel reception and to sell and supply hotel products and services to customers. They must be equipped to attend to meeting service duties. They must be able to serve customers in both national languages and in one foreign language.

Restaurant Cooks must command cooking according to the business idea, using basic recipes. They must be able to plan and prepare tasty and aesthetic portions and meals. They must be able to deal with customer service situations in both national languages, command the basic occupational terminology relating to food and service in English and be able to draw up a menu in Finnish, Swedish, English and French.

Waiters/Waitresses must be familiar with the services of a restaurant as a whole and with the products sold in a restaurant, their content and preparation methods. They must be well acquainted with different kinds of dishes and drinks and be able to recommend products to customers representing a variety of cultures. They must be able to deal with practical service situations in the other national language and in one foreign language.

Those who have completed the qualification possess diverse skills for accommodation, meal production or sales and customer service assignments in hotel and restaurant or ship catering services.

Further Qualification for Cooks, Institutional Catering

The compulsory module of the qualification is either *cookery in institutional catering* or *cookery at staff restaurants*. Two of the following optional modules must also be taken: *private function and*

banqueting services, preparation of dietetic meals, preparation of vegetarian meals, entrepreneurship, a module of some other further qualification.

Candidates must act in accordance with the quality objectives and mission statement of their staff restaurant/institutional catering unit when planning and organising the preparation of customer-focused portions and complete meals. They must possess the ability to time, phase and organise their work and to use machinery and equipment efficiently, as required in the preparation of several alternative meals/large quantities of food. They must command food reception and storage functions. They must be able to choose the correct pre-processing and pre-cooking methods for different foodstuffs. They must know how to prepare dishes and pastries according to customers' tastes and different situations, using different cooking methods. They must be capable of modifying basic dishes into dietetic meals. They must be able to plan and implement the finishing and presentation of dishes and meals. Where necessary, they must be capable of working at dispensing/service counters, in portioning out/serving dishes or in product sales. They must attend to dish care and to the cleaning of facilities and equipment in co-operation with other staff members. They must work in a committed and responsible manner, complying with the instructions of the working community and the legislation governing the field. They must manage in oral customer service situations in one foreign language and be capable of exploiting foreign-language publications in their work. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification may work independently and as members of working groups in food preparation and customer service assignments in institutional catering units or staff restaurants.

Further Qualification for Hotel Receptionists

The compulsory module of the qualification is *hotel reception services*. Two of the following optional modules must also be taken: *hotel meeting services, hotel lobby bar work, hotel sales services, entrepreneurship, a module of some other further qualification.*

Candidates must be familiar with the products and services sold by the business enterprise and with their pricing and must actively sell services to customers. They must be able to guide customers in the use of other tourism services provided in the local area. They must know how to use the hotel and reservations systems as well as machinery and equipment in the reception area. They must be familiar with the reservation practices of hotel reservations agents. They must prepare for receiving hotel guests and be able to perform functions related to checking them in and out. They must attend to the guidance, enjoyment and safety of customers. They must know how to draw up hotel bills for customers and comply with the verification instructions related to means of payment and billing. They must command hotel cash register, reporting and archiving tasks. Where necessary, they must be capable of flexibly shifting to assist in serving, floor service and meeting service assignments. They must take economical, profitability and environmental considerations into account in their work. They must serve customers in accordance with the enterprise's business idea and service culture, in an active, friendly and polite manner. In addition to Finnish or Swedish, they must be able to manage fluently in English and reasonably well in some other foreign language in service situations. They must be able to assess the quality of their work, be committed to the financial and quality-related objectives

of their working community and function in their working community in a co-operative manner. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification may work at reception areas and in the customer service assignments of accommodation enterprises with different business ideas.

Further Qualification in Restaurant Cookery

The compulsory modules of the qualification are *preparation of breakfast, lunch and dinner products* and *preparation of à la carte meals*. Two of the following optional modules must also be taken: *private function and banqueting services in restaurants, preparation of dietetic meals, preparation of vegetarian meals, cookery in ethnic restaurants, entrepreneurship, a module of some other further qualification*.

Candidates must be familiar with unprocessed and pre-processed foodstuffs used in the preparation of food. When planning and organising the preparation of portions and complete meals, they must take account of the restaurant's mission statement, service culture and quality objectives as well as the wishes and needs of customers. They must be able to use raw ingredients and pre-processed goods to prepare tasty and beautifully presented standard meals, dietetic dishes and à la carte meals, using different cooking methods. They must also command the preparation methods typical of special dishes. They must know how to organise, time and phase their work appropriately. They must attend to the order and cleanliness of their own workplace, tools, production and storage areas as well as to the sorting and recycling of waste. They must work proactively, flexibly and responsibly, complying with the operating methods of their working community and the legislation governing the field. They must manage in the restaurant's working community and in customer service situations in one national language and in at least one foreign language. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification may work in demanding cookery assignments at restaurants operating in accordance with different business ideas.

Further Qualification for Waiters/Waitresses

The common modules of the qualification are *sales and service at cafés* and *sales and service at restaurants*. In addition, two of the following modules must be taken: *catering and meeting services, serving at a bar, wine waiting, entrepreneurship in the hotel and catering field*.

Candidates must provide proactive, friendly and responsible customer service and act in accordance with the enterprise's business idea and service culture. They must know how to present, recommend and sell the enterprise's food, drink and other products. They must take the significance of different cultures and religions into account when recommending food and drink. They must be familiar with the raw ingredients and preparation methods of the dishes served as well as with the drinks and their applications in accordance with the enterprise's business idea. They must also competently serve customers with special dietary requirements and those ordering special and seasonal dishes.

Candidates must prepare customer service facilities in accordance with each situation and function and attend to the tidiness and pleasantness of customer and working facilities. They must command the replenishment of self-service counters and buffets as well as serving at

tables. Where necessary, they must be capable of assisting kitchen staff with cooking tasks and switching from one work assignment and place of work to another on their own initiative. They must know how to prepare and finish food products that are simple in terms of preparation methods as well as to prepare and serve the most common cocktails. They must command the cashier, means of payment and accounting functions needed in their work. They must use appropriate working methods, machinery, equipment and implements in their work.

Candidates must comply with legislation governing the field and with the instructions, orders and operating methods of the working community. They must work in an economical manner and take safety and environmental considerations into account in their work. They must also act flexibly with customers from different cultural backgrounds. In addition to Finnish or Swedish, they must manage in service situations in two foreign languages. They must be able to assess their own work and to benefit from the feedback they receive. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification may work in sales and service assignments in restaurants operating with different business ideas.

Specialist Qualification for Bartenders

The common modules of the qualification are *servicing at a bar* and *bar sales and service functions*. In addition, one of the following modules must also be selected: *bar manager functions*, *wine waiting* and *entrepreneurship in the hotel and catering field*.

Candidates must be familiar with the non-alcoholic and alcoholic beverage products sold in a bar and with bar machinery, equipment, basic implements and glasses. They must command the elements of serving meals and know how to present, recommend, prepare and serve Finnish and international cocktails in a variety of service situations. In addition to Finnish or Swedish, they must also be able to manage fluently in English and reasonably well in some other foreign language in service situations. They must be familiar with the principles of thinking and pricing in terms of contribution margins. They must know how to handle means of payment and prepare sales accounts and command the routines relating to their department's stocktaking, bookkeeping and stock turnover.

Candidates must understand the significance of stakeholder contacts and an effective working community and international trends to the development of bar operations. They must know how to plan campaigning related to various situations and themes and be familiar with the available competition methods. As team leaders, they must show supervisory skills, knowledge of collective agreements and the competence required for drawing up shift rotas. They must make use of customer feedback in their work and be capable of giving and accepting feedback in their working community.

Those who have completed the qualification may work in customer service assignments in different types of hotels and restaurants.

Specialist Qualification for Dietary Cooks

The common modules of the qualification are *nutritional and special dietary services* and *special diet planning and product development*. In addition, two of the following modules must also be selected:

vegetarian and cultural catering services, special dietary services for children and young people, special dietary services at restaurants, special dietary services for elderly people and special dietary services at hospitals.

It is also possible to choose the optional *entrepreneurship in the hotel and catering field* module.

Candidates must know how to perform a cook's work assignments in their own operating environment in a smooth and competent manner. They must be able to work flexibly and cooperatively with kitchen and customer service staff. They must know how to work in a customer-focused, economical and hygienic manner. They must be able to function safely and efficiently even when busy and under pressure. They must know how to use information technology, seek information and follow changes in their own field, being able to apply new information to their work.

Candidates must be familiar with nutritional factors influencing human health and well-being and understand the significance of diet to vital functions and metabolism. They must be familiar with basic and special foodstuffs used to prepare food and know how to make use of their nutritional contents when putting diets together. They must know how to read and interpret lists of ingredients of finished products, drawing appropriate conclusions on whether the products are suitable for specific diets. They must know how to display products or dispatch products that they have prepared for customers in appropriate packaging.

They must command special diets used in their operating environment and be able to acquire the necessary information on new diets. They must be familiar with the nutritional needs of different population groups and the effects of special situations on these as well as with nutritional recommendations. They must be familiar with the effects of different religions and cultures on eating habits and use of foodstuffs. They must show respect for and appreciation of their customers' convictions by taking these into account when planning menus.

Those who have completed the qualification may work in units providing various meal and catering services, including cooking kitchens, institutional kitchens, restaurants, hospitals, old people's homes, schools and child day-care centres.

Specialist Qualification for Foods Managers

The qualification comprises four modules: *management of business operations, implementation of business ideas, customer relationship management* and *on-the-job instruction*.

The vocational skills requirements of the Specialist Qualification for Foods Managers cover the management of the overall service process and attendance to key assignments in the fast-moving consumer goods business. Those who have completed the qualification have extensive skills to work flexibly in various assignments within the field and capabilities to maintain and develop their vocational skills.

Those who have completed the qualification work in the fast-moving consumer goods business in food-related customer service and expert assignments.

Specialist Qualification for Hotel, Restaurant and Catering Service Managers

The common modules of the qualification are *supervision of production and service operations, managerial work* and *sales and marketing*. One of the following optional modules must also be

taken: *language skills in service and staff orientation situations, entrepreneurship, a module of some other further or specialist qualification.* Candidates may choose one of the following areas for their competence tests: managerial duties within a hotel, managerial duties within a restaurant, managerial duties within a restaurant kitchen or managerial duties in institutional catering. Candidates are required to possess the occupational qualifications and language skills of skilled workers according to their chosen competence test option.

Candidates must be familiar with the production and service processes and customer structure of their operating environment as well as with the key stakeholder groups in their field. They must be capable of planning, developing, organising, supervising and monitoring services, products and production in a customer-focused and economical manner and in accordance with quality objectives. In their work, they must know how to apply the statutes and agreements of their field and supervise compliance with these. They must be capable of assessing their own resources and those of their working community and assume responsibility for planning resources in their unit. They must participate in recruitment, be familiar with matters related to payroll administration and command staff orientation. They must assume and delegate responsibilities, know how to encourage their staff and be capable of assessing their management methods. They must know how to make material, equipment and working hours plans and assume responsibility for the overall materials management functions of their profit centre/department. They must know how to exploit statistical and research data, profit margin accounting and key ratios in their decision-making. They must have the capabilities to participate in the preparation of the action plan and budget for the working community. They must be able to plan and implement campaigns and themed events and to draw up tenders, sales letters and bulletins. They must know how to market and sell products and services and attend to customer and stakeholder relations. They must know how to use different types of communications equipment and information technology. In addition, they must command the skills and knowledge of their chosen optional module.

Those who have completed the qualification possess the capabilities to function in managerial positions, as shift supervisors or as heads of small units/departments.

DOMESTIC AND CONSUMER SERVICES

VOCATIONAL QUALIFICATIONS

- Vocational Qualification in Household and Consumer Services

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification In Household Services

Vocational Qualification in Household and Consumer Services

The compulsory modules common to both competence areas of the qualification are *household food and catering services* and *household cleaning and textiles care services*. The compulsory module of the competence area in household services (Household Services Entrepreneur) is *provision of household services*. The compulsory module of the competence area in consumer services (Consumer Adviser) is *consumer services*. In addition, one of the following modules must also be taken: *functioning in a home-like institution, functioning in a catering enterprise, functioning in a household service enterprise, consumer services in an establishment*.

Candidates must be familiar with the main features of Finnish cuisine and be able to prepare ordinary tasty everyday meals, seasonal and thematic dishes and pastries. They must be able to recognise household foodstuffs processed to various degrees and be able to acquire, store and use them economically and appropriately. They must be able to apply basic diets in the planning and preparation of diets and complete meals for customers of different ages and for special groups. They must command routine and intensive domestic cleaning in various locations and domestic textiles care and laundry services. In their work, they must behave in a service-oriented manner, respecting customers' privacy, and comply with the obligation to maintain secrecy.

Household Services Entrepreneurs must be able to prepare, market and sell various household products and provide services, arrange special family celebrations and feasts and engage in tourism and accommodation activities.

Consumer Advisers must be able to present and sell various household products, equipment and services and advise on their use.

Those who have completed the qualification possess diverse skills for producing and selling various household services and for related advisory assignments.

Further Qualification In Household Services

Candidates must choose three of the following modules: *household cleaning services, household textiles care and laundry services, household meal services, personal assistance and errand services, gardening services, household repair and maintenance services* and *entrepreneurship in household services*.

Depending on their chosen modules, candidates must know how to provide competent and knowledgeable household cleaning, textiles care and laundry services, meal preparation, personal assistance and errand services, gardening and household repair and maintenance services. They must possess the ability to interact with people of different ages. They must be capable of negotiating with clients on assistance needs and operating methods at each specific

time. They must respect each client's property, privacy, habits and customs in all their actions. They must work carefully, responsibly, swiftly, hygienically and systematically, taking other home activities into account. When carrying out their duties, they must be proactive, reliable and discreet. In addition, the work requires client service and marketing skills in order to guarantee success and to further develop services.

Candidates must know how to carry out routine and intensive cleaning tasks in a competent manner. They must be familiar with the most common pot plants used for interior decoration purposes and be capable of caring for these in accordance with the client's instructions. They must be familiar with different household surface materials and know how to care for and clean these. They must know how to wash and finish the client's laundry. They must know how to clean pieces of upholstered furniture or carpets using a pressure washer. They must be familiar with the most common footwear materials and know how to clean and care for different types of footwear.

Candidates must be able to advise clients to use the services of commercial laundry and dry-cleaning establishments when textile care instructions so require or when it is economically sensible or necessary in terms of product safety. They must be capable of preparing home-made food economically. They must know how to plan and prepare complete meals in accordance with individual clients' special dietary requirements. They must know how to bake and be capable of devising a meal for guests together with a client and of implementing it.

Candidates must know how to assist clients to cope with daily activities. They must be familiar with the area's service system and know how to seek information about it from the local social security office, library or the Internet, for example. They must be able to assist clients to move about and run errands safely outside of their homes. They must be able to run errands on behalf of clients and be familiar with the requirements involved in running errands.

Candidates must know how to tend a client's lawn and vegetable garden, if there is one, and related stone and tile paving as well as trees, shrubs and plant beds. They must know how to clean and repair the client's garden paths, structures and fixtures.

Candidates must know how to perform household repair and maintenance tasks, such as assembling or servicing pieces of furniture, fittings, garden fixtures and appliances. They must know which tasks require specific permits and be aware of financing channels and the possibility for a tax credit for domestic help.

Candidates must be aware of the opportunities provided by the household service sector to launch business operations. They must be aware of the basic concepts of business operations and different forms of enterprise. They must be familiar with the requirements of entrepreneurship and be able to assess their own potential for entrepreneurship. They must comply with occupational safety instructions and attend to the safety of their working environment. They must work so as to conserve the environment, in compliance with waste management regulations and in an ergonomically appropriate manner. They must take the effects of their own work performance on the financial results of the enterprise into account.

Household service professionals may work in clients' homes either as employees of business enterprises, associations or public organisations providing such services or as entrepreneurs, such as independent self-employed people.

CLEANING SERVICES

VOCATIONAL QUALIFICATIONS

- Vocational Qualification in Cleaning Services

FURTHER VOCATIONAL QUALIFICATIONS

- Further Qualification in Institutional Cleaning
- Further Qualification in Textiles Care

SPECIALIST VOCATIONAL QUALIFICATIONS

- Specialist Qualification for Cleaning Supervisors
- Specialist Qualification for Cleaning Technicians
- Specialist Qualification for Laundry Technicians

Vocational Qualification in Cleaning Services

The compulsory module common to both competence areas of the qualification is *cleaning services*. The compulsory modules of the competence area in cleaning services (Site Facilities Operative) are *house-cleaning services* and *site facility services*. Two of the following optional modules must also be taken: *cleaning services at special sites, meeting and assisting customers, functioning in a cleaning service enterprise*. The compulsory module of the competence area in textiles care (Textiles Care Operative) is *textiles care services*. Candidates must also take either three of the optional modules *wet-cleaning operations, dry-cleaning operations, textile rental services, laundry customer services* and *carpet care*, one of which must be either wet-cleaning operations or dry-cleaning operations, or both wet-cleaning operations and dry-cleaning operations.

Candidates must understand that the cleaning service sector constitutes service work and communicate it through their own behaviour. They must be able to carry out routine cleaning work in accordance with clear instructions. They must be able to use, clean and store routine cleaning implements and command the use of vacuum cleaners and combined machinery. They must be familiar with the most common laundry services and be able to care for the most common textiles. They must take environmentally friendly alternatives into account in the selection of cleaning methods and materials.

Site Facilities Operatives must be able to interpret the work instructions in computer-based cleaning work dimensioning software and to select a routine and intensive cleaning method suitable for each situation. They must be able to combine other service tasks with cleaning services according to the mission statement and the business idea of the business enterprise. They must be able to work at the information points of different workplaces and be able to perform the most common office duties. They must be able to implement meeting arrangements and catering according to stated preferences.

Textiles Care Operatives must be able to advise customers in the choice of laundry services and be able to take part in service and sales events in their field. They must be able to use automated machinery and equipment at laundries and the basic automated data-processing functions.

Those who have completed the qualification are equipped for assignments related to the cleaning and servicing of various facilities, equipment and textiles.

Further Qualification in Institutional Cleaning

The common modules of the qualification are *provision of cleaning services* and *intensive cleaning services*. In addition, three of the following modules must also be chosen: *catering services, reception and conference services, cleaning services for special sites, care services, language skills in service situations, property maintenance services, textiles care services, pest control services, indoor plant care and attendance to the pleasantness of customer facilities, equipment maintenance services, environmental maintenance services, entrepreneurship in cleaning services*. One of the optional modules may be a *module of some other further qualification* that is closely related to work assignments.

Candidates must be able to carry out their work in a competent and customer-focused manner. They must act responsibly, justifying their choices, in co-operation with customers and members of their working community. They must be aware of the significance of their work to their customers. They must be able to assess their own work and bring out their own competence. They must work cost-effectively, being aware of how to influence cost formation for their own part.

Candidates must know how to plan and perform routine and intensive cleaning tasks in accordance with work instructions or the service description, customer needs and the functions of the site. They must command cleaning methods and cleaning agents, equipment and machinery used in such methods.

Candidates must be familiar with the significance of nutrition to human well-being. They must take customers' different diets and cultural differences into account. They must know how to perform various catering services at customer sites, such as breakfasts, snacks or conference refreshments. Where necessary, they must be capable of portioning and serving dishes and participating in dish care. They must be aware of the significance of hygiene and self-monitoring in catering services.

Candidates must know how to provide reception and conference services as required at the customer site and arrange catering for meetings, where necessary.

Candidates must know how to carry out cleaning services at special sites as required by customers. Candidates must know how to plan and carry out cleaning work at their chosen special site in accordance with work orders, customer needs and the functions of the facilities. They must command the cleaning methods, agents, equipment and machinery used to clean special sites.

Candidates must be able to deal equally with different people, taking customer needs as the starting point for their actions. They must be capable of independent and empathetic interaction with customers. They must be aware of the responsible and confidential nature of their work at customer sites.

Candidates must know how to assist customers in daily activities, such as functions relating to personal hygiene, eating, moving about and recreational activities. They must be able to work in co-operation with nursing staff or independently as required.

Candidates must be aware of the significance of their own personality and interaction as part of the corporate image of individual customer sites. They must also be able to manage various customer service situations in a language other than their own mother tongue and know how to participate in guiding customers within the service chain.

Candidates must know how to provide property maintenance and textiles care services as required at a specific customer site. They must be familiar with the different areas of property

maintenance at the customer site. They must monitor and observe the condition of facilities and the property and report any possible repair issues as agreed. They must know how to carry out property maintenance work as required at the customer site. They must be aware of the most common materials and textiles care instructions and choose care methods according to instructions.

Candidates must know how to negotiate about pest control with customers. They must be capable of inspecting buildings, facilities and materials to detect pests. They must be able to identify pests and draw up inspection reports. They must know how to plan and prepare a pest control programme, assess the need for control measures and carry out pest control work, including precautions, and draw up a report on implementation of the assignment. They must be able to plan and carry out follow-up inspections of pest control arrangements and write a follow-up report.

Candidates must be able to carry out indoor plant care services and other tasks relating to the pleasantness of customer facilities. They must be familiar with indoor plants and know how to care for these competently. They must know how to plan and prepare cut flower arrangements for their worksite and care for these. They must know how to maintain silk plants at their worksite and use silk flowers and other materials to prepare arrangements suitable for the facilities. They must be capable of attending to the pleasantness of customer facilities and decorating these according to customer needs.

Candidates must be aware of the significance of equipment maintenance as part of customer safety. They must know how to pretreat, clean and disinfect the most common diagnostic and medical equipment used at a customer site. They must be aware of the classification of cleanliness required of the equipment and its maintenance cycle at the customer site. They must attend to transportation, preservation and storage of equipment.

Candidates must be aware of the basic concepts of business activities and different forms of enterprise. They must be able to assess their own potential and resources to function as entrepreneurs and launch business operations.

In their work, candidates must apply ergonomic working methods, comply with occupational safety instructions and be aware of the environmental effects of their work. They must be aware of waste management guidelines and methods at individual customer sites as well as with relevant acts, other statutes and instructions.

Those who have completed the qualification may work as skilled workers in the cleaning services sector with occupational titles such as cleaner, facilities or industrial cleaner, service supervisor, hotel housekeeper, school maintenance operative, institutional maintenance operative, hospital maintenance operative, institutional auxiliary, ward domestic, nursing auxiliary, day-care centre assistant, etc. They may also function as entrepreneurs or independent self-employed people.

Further Qualification in Textiles Care

The compulsory module of the qualification is either *wet-cleaning* or *dry-cleaning*. One of these may be taken as an optional module, in which case it is equivalent to two optional modules. Three of the following optional modules must also be taken (or one module if both compulsory modules have been taken): *hospital textiles care, surgical textiles care, special textiles care, laundry customer services, carpet care, textile rental services, customer service and laundry information systems, leather and fur care services, entrepreneurship in the laundry sector, logistics in textiles care, language skills in service situations.*

Candidates must be familiar with various types of laundries, their forms of operation and services. They must be aware of the cost formation of laundry operations and be able to carry out calculations relating to laundry operations. They must be able to make use of information technology and laundry information systems in their work. They must be familiar with materials and with the interactions of the various factors involved in wet- or dry-cleaning and be able to select a method of care according to textile care instructions. They must be familiar with the laundry process phases and washing chemicals of various laundries and with their environmentally friendly use in accordance with occupational safety. They must be able to make use of laundry automation and be familiar with the operating principles and structures of the programmes of washing machines. They must be familiar with the malfunction signals of the machinery and equipment in their area of responsibility and know how to act in the event of malfunction. They must use machinery and equipment efficiently. They must be able to decide on the after-treatment methods for groups of textiles and be familiar with stain removal and rewashing procedures. They must be familiar with the risks of laundry operations and act in accordance with occupational health and safety guidelines. They must work independently, systematically and flexibly. They must manage customer service situations in a friendly and smooth manner and be able to guide customers in the choice of service. In addition, they must command the skills and knowledge of their chosen optional modules.

Those who have completed the qualification may work in textiles care and customer service assignments in institutional or service laundries and/or dry-cleaning establishments.

Specialist Qualification for Laundry Technicians

The compulsory modules of the qualification are *management of textiles care work*, *development of textiles care services* and *profitable textiles care operations*. In addition, one of the following optional modules must also be taken: *customer service and marketing in textiles care*, *textile rental services*, *quality and environmental improvement in textiles care services*, *language skills in service and staff orientation situations*, *entrepreneurship in textiles care services* or a module of some other specialist qualification relevant to the field.

Candidates aiming to complete the Specialist Qualification for Laundry Technicians must know how to manage laundry operations in compliance with the values and operating principles of their business enterprise or organisation. They must be able to assume responsibility both for internal publicity and marketing measures and for those targeting different interested parties. They must be able to act in an interactive, customer-focused and profitable manner and adjust their actions flexibly to suit each particular situation. They must be able to obtain feedback from customers and from their working community and know how to exploit it in their work. They must command meeting procedures and be able to perform duties relating to staff recruitment, employment and orientation and also provide textiles care staff with workplace instruction and supervision. They must be familiar with labour legislation and be able to apply it in practical situations. In addition, they must be able to develop both their work organisation and its staff, to assess their own actions and to readjust them on the basis of feedback received.

Candidates must be capable of functioning as experts in their field in efforts to improve textiles care services and the quality of services. They must also be able to design laundry space solutions, including machinery and equipment. They must command the planning and logistics of laundry processes. They must be able to market textiles care services and auxiliary services to

different customer groups in a profitable manner.

Candidates must be capable of following costs and profitability in their business enterprise or area of responsibility. They must command budgeting and cost accounting and considerations related to planning and implementing purchases and to practical payment transactions.

In addition, candidates must command customer service and marketing in textiles care or textile rental services or quality and environmental improvement in textiles care services or language skills in service and staff orientation situations or entrepreneurship in textiles care services.

Those who have completed the qualification may work as supervisors of employee groups or as superiors of a few laundry employees, as customer service managers or supervisors, or as managers of service laundries. Laundry technicians may also function as independent entrepreneurs, in expert positions and in sales and marketing of machinery, equipment and chemicals used in the field.

Specialist Qualification for Cleaning Technicians

The common modules of the qualification are *management of facilities services* and *planning and development of facilities services*. In addition, one of the following modules must also be chosen: *language skills in supervisory assignments*, *marketing facilities services*, *management and development of environmental management services*, *entrepreneurship in cleaning services* and *a module of some other specialist qualification*.

Candidates must diversely command practical cleaning work and occupational techniques of cleaning. They must know how to provide employees with orientation, supervision and guidance for tasks within the organisation or business enterprise and at customer sites and encourage them to learn new things and develop their work. They must guide employees to work in a customer-focused manner, in compliance with different standards of cleanliness, hygienically, ergonomically, efficiently and economically.

Candidates must be capable of planning and implementing staff recruitment processes in their area of responsibility. They must know how to work in supervisory assignments and they must have in-depth knowledge of current management systems, styles and methods. They must be aware of key labour legislation and comply with it in their work.

Candidates must know how to co-operate with customers. They must command negotiation, discussion and meeting practices and know how to attend to external and internal information and communication measures vis-à-vis various stakeholder groups. They must be able to monitor and report on the profitability and performance of operations within their own area of responsibility, organisation or business enterprise. They must know how to use the financial indicators describing their organisation or enterprise when planning, assessing and developing operations within their own area of responsibility. They must know how to prepare a budget for their own area of responsibility and to monitor and report on its implementation. They must attend to purchasing supplies and services within their area of responsibility. They must be able to assess their own management skills and their work as supervisors. They must be able to participate in operations aiming to develop their organisation or enterprise as experts in their field.

Candidates must be acquainted with the quality system of their organisation or enterprise.

They must be able to monitor and develop the quality of services in co-operation with their customers and staff. They must be capable of planning and carrying out scope estimation of cleaning, facilities and other services for a customer site. They must know how to assess factors influencing the cleanability and maintenance costs of buildings or facilities and to plan solutions that are as effective as possible. They must be able to function as cleaning experts in construction projects. They must be capable of communicating both orally and in writing and of managing customer service and workplace supervision situations in a language other than their mother tongue.

Candidates must know how to market the services and products of their organisation or business enterprise in a customer-focused manner. They must know how to plan and implement customer and marketing events according to the needs of their organisation or enterprise. They must be able to do their share of sales work within their enterprise or organisation. They must be aware of and comply with the most common environmental systems used in cleaning services and within their own organisation. They must be familiar with key legislation and local guidelines related to waste management and, based on these, be able to assess, plan and develop waste management at customer sites. They must know how to provide employees and customers with orientation and advice on environmental management issues.

Candidates must be aware of the basic concepts, measures and competitive means involved in starting and running business operations. They must be capable of assessing operations of various business enterprises and their own entrepreneurial qualities.

Candidates may expand their vocational skills by completing a module of another specialist qualification closely related to their work assignments as an optional module, provided that this is not from the Specialist Qualification for Cleaning Supervisors.

Those who have completed the qualification may work as skilled workers in the cleaning services sector, such as service supervisors, cleaning supervisors, service managers, cleaning managers, product managers or contacts managers. They may work in planning, product development or expert assignments or as sales representatives within the sector, but also as entrepreneurs or independent self-employed people.

Specialist Qualification for Cleaning Supervisors

The common modules of the qualification are *supervision of cleaning work* and *organisation of cleaning services*. In addition, one of the following modules must be chosen: *language skills in supervision situations*, *multiculturalism in cleaning services*, *guidance and advice in environmental management services*, *entrepreneurship in cleaning services* and *a module of some other specialist qualification*.

Candidates must diversely command practical cleaning work and occupational techniques of cleaning. They must know how to provide employees with orientation in new or altered tasks within their organisation or business enterprise and at customer sites. They must be able to plan and carry out task-specific guidance at customer sites. They must guide employees to work in a customer-focused manner, in compliance with different standards of cleanliness, hygienically, ergonomically, efficiently and economically.

Candidates must know how to plan and organise practical cleaning and other service work at a customer site in a customer-focused and high-quality manner, also participating in the work themselves. They must know how to order supplies within their area of responsibility and attend to storage of supplies. They must be familiar with the basics and significance of estimating the

scope of work in terms of service planning and practical work. They must know how to plan and organise work areas and service assignments at a site on the basis of completed workload estimates, service descriptions or work instructions. They must also manage various customer service situations and staff orientation in a language other than their own mother tongue.

Candidates must deal naturally with people from different cultures. They must take different cultures and related differences into account in communication and interactive situations. They must actively aim to eliminate prejudices towards people from different cultures. They must know how to supervise and provide orientation for people from different cultures as required by their vocational and language skills. They must contribute to development of a good atmosphere within the working community.

Candidates must be aware of the principles of the environmental system used in their organisation or business enterprise and at their worksite and comply with these in their work. They must be familiar with acts and other statutes related to waste management, assessing waste management issues at customer sites on the basis of these. They must know how to provide employees and customers with guidance and advice on environmental management issues.

Candidates must be aware of the opportunities provided by the cleaning services sector to launch business operations. They must be aware of the basic concepts of business operations and different forms of enterprise. They must be aware of the factors that need to be considered when planning business operations.

Candidates must always act in a customer-focused, quality-conscious and co-operative manner. They must be capable of assessing their own work and language skills in all customer service and co-operation situations and in staff orientation and supervision. They must be familiar with the cost control system used in their organisation or business enterprise and control costs within their own area of responsibility.

Candidates may expand their vocational skills by completing a module of another specialist qualification closely related to their work assignments as an optional module, provided that this is not from the Specialist Qualification for Cleaning Technicians.

Those who have completed the qualification may work in the cleaning services sector in positions such as service supervisors, cleaning supervisors, team leaders, team seniors or team supervisors. They may also function as entrepreneurs or independent self-employed people.

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