TECHNOLOGY AND TRANSPORT
Mechanical, Metal and Energy Engineering
Automotive and Transport Engineering
Information and Telecommunications Technology
This brochure is divided into three sections as follows:
I: Architecture and Construction, Electrical and Automation Engineering, Other Education in Technology and Transport
II: Mechanical, Metal and Energy Engineering, Automotive and Transport Engineering, Information and Telecommunications Technology
III: Graphics and Communications Technology, Food Science, Food Industry and Biotechnology, Process, Chemical and Materials Engineering, Textiles and Clothing Technology

Qualifications in the mechanical and metal sector (vocational qualifications, further qualifications and specialist qualifications) impart the competence needed in particular in tasks of the technology industry, but it can also be applied to production tasks in other sectors, as well as the service and maintenance tasks of various industrial plants and buildings. In product manufacturing, machining is typically carried out using computer-controlled machine tools; numerically controlled and automatic plate machines are used to manufacture plate components; and components are joined together by welding and other techniques. The sector also offers an extremely wide variety of machine and equipment assembly tasks. The maintenance and service tasks comprise operation and condition monitoring and associated measuring tasks as well as machine and equipment installations (including electrical work).

Technology industry tasks requiring strong and versatile expert skills will persist and, in certain specialist areas of competence, even increase in number. Services associated with the trade of machines and equipment are expanding, which will increase the need for persons with versatile skills who master their installations and maintenance.

Automotive and Transport Engineering comprises functions associated with transport, maintenance, servicing, repairs and services in road transport, shipping and aviation. The essential aspect in all functions of this group is the efficiency, safety, reliability and quality of services. Some vocations are subject to international regulations.

Tasks in this field are very versatile. Professionals in the sector work in tasks related to servicing, repairing or selling machines and equipment or transport of goods and passengers. Vocations in this field require not only technical or logistic skills but also a service-oriented approach and skills relevant to internationalisation and sustainable development. Professionals in the sector are employed by car and car accessory dealers, repair shops, transport operators, trade, industry, airlines, airports, the Air Force, shipping companies and ports.
The Information and Telecommunications sector ensures the construction, maintenance and high-quality operation of information and telecommunications systems that underlie society’s functions. Innovations in this sector are constantly breaking new ground. Applications targeting different service sectors play a role in the life and quality of life of all citizens. Information and telecommunications equipment is used to manage an ever-increasing share of people’s social activities and finances. People need advice and guidance when new applications and functions are introduced in their homes and elsewhere.

Various types of professionals are needed in this sector for the construction, installation, repair, servicing and maintenance tasks of systems and hardware. Vocational, Further and Specialist Qualifications in Information and Telecommunications technology give competence in these tasks. Tasks in this sector are highly versatile and demanding. Professionals of information and telecommunications technology work in an area where hardware and systems are undergoing a rapid development and documentation of hardware and services is written in English.
**Vocational Qualifications**
- Vocational Qualification in Metalwork and Machinery
  (3 study programmes / competence areas)
- Vocational Qualification in Mining
  (1 study programme / competence area)
- Vocational Qualification in Vehicle Technology
  (6 study programmes / competence areas)
- Vocational Qualification in Air Traffic Control
  (1 study programme / competence area)
- Vocational Qualification in Aircraft Maintenance
  (2 study programmes / competence areas)
- Vocational Qualification in Logistics
  (3 study programmes / competence areas)
- Vocational Qualification in Seafaring
  (4 study programmes / competence areas)
- Vocational Qualification in Information and Telecommunications Technology
  (1 study programme / competence area)

**Further Qualifications**
- Further Qualification for Lift Mechanics
- Further Qualification for Welders
- Further Qualification in Mining
- Further Qualification for Mechanical Fitters
- Further Qualification for Machinists
- Further Qualification for Shipbuilders
- Further Qualification in Plate and Sheet Metal Technology
- Further Qualification in Metal Processing
- Further Qualification for Industrial Pipefitters
- Further Qualification for Toolmakers
- Further Qualification in Casting Technology
- Further Qualification in Foundry Patternmaking
- Further Qualification for Vehicle Crane Operators
- Further Qualification for Vehicle Body Mechanics
- Further Qualification for Vehicle Painters
- Further Qualification for Car Salespeople
- Further Qualification for Car Mechanics
- Further Qualification in Cargo Handling
- Further Qualification in Airport Services
- Further Qualification for Bus Drivers
- Further Qualification for Small Machinery Mechanics
- Further Qualification for Heavy Vehicle Mechanics
- Further Qualification for Parts Salespeople
- Further Qualification in Warehousing
- Further Qualification for Drivers of Articulated Vehicles
- Further Qualification for Forest Machine Mechanics
- Further Qualification in Timber Lorry Transport
- Further Qualification for Electronics Assemblers
- Further Qualification for Computer Mechanics
- Further Qualification for Telecommunications Fitters

**Specialist Qualifications**
- Specialist Qualification for Welders
- Specialist Qualification for Mechanical Fitters
- Specialist Qualification for Machinists
- Specialist Qualification for Platers
- Specialist Qualification for Toolmakers
- Specialist Qualification in Casting Technology
- Specialist Qualification in Foundry Patternmaking
- Specialist Qualification for Car Salespeople
- Specialist Qualification for Supervisors in Vehicle Technology
- Specialist Qualification for Vehicle Body Mechanics
- Specialist Qualification for Vehicle Painters
- Specialist Qualification for Vehicle Mechanics
- Specialist Qualification in Cargo Handling
- Specialist Qualification for Haulage Organisers
- Specialist Qualification for Driving Instructors
- Specialist Qualification in Warehousing
- Specialist Qualification for Electronics Assemblers
- Specialist Qualification for Computer Mechanics
- Specialist Qualification for Telecommunications Fitters
**VOCATIONAL QUALIFICATIONS**

Vocational qualifications impart wide-ranging vocational competence needed in working life, specialist skills in the field, and capacity for further studies. The scope of a vocational qualification is 120 credits, mostly consisting of vocational qualification modules made up from on-the-job work and activity packages. In addition to compulsory vocational modules of the qualification, there is a large selection of optional ones, for example those that are part of other vocational qualifications. It is also possible to individually expand the qualification. Upper secondary vocational education and training also contain modules complementing vocational skills and optional modules. A vocational qualification can be taken in 2-4 years, depending on the student's basic education and work experience.

A vocational qualification can be taken through vocational upper secondary education and training or as a competence-based qualification.

At their discretion, students or candidates can take one or several modules of the vocational qualification at a time, whenever this is appropriate for their placement in working life. In that case, a plan covering the entire vocational qualification is prepared.

**FURTHER AND SPECIALIST QUALIFICATIONS**

For further qualifications, the students or candidates demonstrate their mastery of vocational skills required of an employee in the field, and in specialist qualifications, mastery of the most demanding tasks in the field.

The further and specialist qualifications consist of on-the-job work and activity packages. Compulsory and/or optional modules of the qualification are determined in the qualification requirements. The scope of further and specialist qualifications or their parts is not determined in credits.

Further and specialist qualifications are taken as competence-based qualifications.
MECHANICAL, METAL AND ENERGY ENGINEERING

VOCATIONAL QUALIFICATIONS

Vocational Qualification in Metalwork and Machinery
Holders of a Vocational Qualification in Metalwork and Machinery work in the technology industry. Their tasks include the manufacturing of various machines and equipment, machinery, equipment and automation installations and maintenance. They know how to manufacture components following work drawings, install machines and equipment, and conduct quality assurance measurements. They are competent in mechanical drawing and use CAD/CAM programs to plan and prepare machining paths. They are able to operate manually and numerically controlled machine tools, and they have the competence to use operation and maintenance systems. They have the knowledge and skills required for obtaining an Occupational Safety Card and a hot work licence.

Titles:
- Machinist
- Plate-welder
- Mechanical Fitter
- Toolmaker
- Precision Mechanic
- Automation Assembler
- Maintenance Fitter
- Founder
- Foundry Pattern-maker

Machinists carry out drilling, lathing, milling and grinding tasks with both manual and numerically controlled machine tools.

Jobs: Engineering workshops that manufacture products or produce components as subcontracting work.

Mechanical Fitters carry out installation and assembly tasks following assembly and installation drawings, and they have basic skills in machining as well as sheet metal and welding work.

Jobs: Industries manufacturing machines and equipment, where assembly tasks are carried out in an engineering workshop or installations are performed on-site.
Plate Welders weld and make various sheet metal and metal structures following work drawings.

**Jobs:** Engineering workshops manufacturing sheet metal and steel structures or producing components as subcontracting work.

Toolmakers produce various tools accurately, use versatile machining methods and observe the dimension, shape and location tolerances of work drawings.

**Jobs:** Engineering workshops that produce tools or perform other precision machining tasks using specialist machine tools.

Precision Mechanics are engaged in precision machining. They produce and join sheet metal components and carry out mechanical and electrical installations. They also manage assembly and repair tasks of equipment containing mechanics and electronics.

**Jobs:** The electronics industry and industry producing various instruments, in which micromechanical components are manufactured and electromechanical assembly carried out.

Automation Assemblers install automation equipment, apply their knowledge of mechanics, hydraulics and pneumatics in their work and carry out electrical installations between electrical control components and operating devices.

**Jobs:** Industries manufacturing machines and equipment, maintenance companies, production plants and property maintenance companies.

Maintenance Fitters work in service and maintenance tasks: they dismantle and assemble machines and equipment, carry out lubrication maintenance, perform operation and condition monitoring measurements and operate maintenance systems.

**Jobs:** Maintenance companies, production plants and property companies.

Founders make dead moulds and melt, cast and post-process cast pieces. They also use permanent mould technique foundry equipment and melt and finish cast pieces.

**Jobs:** Subcontracting foundries and mechanical workshops with their own foundries.

Foundry Patternmakers make foundry patterns and core boxes from various pattern materials.

**Jobs:** Carpentry workshops subcontracting for foundries, mechanical workshops with their own foundries.

Vocational Qualification in Mining

Vocational qualification holders are engaged in basic mining tasks. They draw on their competence in electricity, automation, hydraulics/pneumatics and metal technology in their work, as well as on their basic knowledge of geology, mineralogy, mineral deposit exploration and rock mechanics. They are able to use basic tools, machines and instruments in quarrying, enriching, maintenance, measurements and analyses.
Further Qualification for Welders
Holders of a Further Qualification for Welders carry out welding tasks with an IW competency. They use at minimum three different welding processes and two steel grades belonging to different material groups, one of which is stainless steel.

Jobs: machinery and metal product industries, other industries and civil engineering.

Further Qualification in Mining
Qualification holders may engage in the following tasks: charging, drilling, mineral deposit explorations (percussion and core drilling), mining surveys, bolting, netting, concreting, processing of crushed rock, crushing, hoisting, construction technical work and machinery maintenance. They take into consideration special regulations and decrees applicable to the sector as well as the safety risks of mining, and they observe ergonomics in their work. They work in compliance with the quality and environmental programmes of their work community, drawing on their basic knowledge of geology, mineralogy and rock mechanics.

Jobs: mines.

Further Qualification for Mechanical Fitters
Holders of a Further Qualification for Mechanical Fitters assemble, install, service and repair machines and equipment based on the specialisation area of their choice. Qualification holders specialising in assembly installations carry out not only mechanical installations but also pneumatics installations, installations of lubrication equipment, work on control and automation equipment and equipment welding as well as installations of industrial or machinery hydraulic systems. Qualification holders specialising in export installations have skills in working at

Titles:
• Miner
• Processing Plant Operator

Miners (study programme/competence area in Mining) carry out essential quarrying tasks (drilling, loading, crushing, hoisting, backfilling, rock reinforcement methods, processing of crushed rock, construction technical work). They are able to service the machines and equipment they use and carry out mechanical maintenance.

Jobs: underground or opencast mines.

Processing Plant Operators (study programme/competence area in Mining) carry out essential tasks of mechanical crushing (crushing and pulverizing) and essential enrichment unit process tasks as a team member. They perform measurement, adjustment, service and maintenance tasks associated with processes.

Jobs: mine enrichment plant, process industry.

FURTHER QUALIFICATIONS

Further Qualification for Lift Mechanics
Holders of the Further Qualification for Lift Mechanics install lifts and escalators following work drawings and instructions, perform their maintenance and renovation tasks, and manage goods delivery logistics at installation sites in compliance with the company's environmental programme and occupational and electrical safety regulations. They observe a quality system, monitor costs and take care of site negotiations.

Jobs: companies manufacturing and servicing lifts.

Further Qualification for Mechanical Fitters
customer sites, and they manage installations and operation in the prevailing conditions at the installation site. Qualification holders specialising in maintenance carry out not only maintenance operations and mechanical maintenance work but also maintenance of hydraulic, pneumatic and lubrication systems, work on control and automation equipment and repair welding. **Jobs:** machine and metal product industries, repair and maintenance tasks of other types of production plants.

**Further Qualification for Machinists**
Holders of a Further Qualification for Machinists machine tools following work drawings and using appropriate techniques and machines. They are familiar with material markings of the materials used and the applications and strength properties of materials, and they draw up logical, functional and safe work phasing plans. They carry out measurements during manufacturing phases and quality assurance measurements of finished pieces using appropriate instruments. Qualification holders use tools, machines and equipment economically and take into account the effects of the working method on overall costs. **Jobs:** mechanical and metal product industries, subcontracting engineering workshops.

**Further Qualification for Shipbuilders**
Holders of a Further Qualification for Shipbuilders carry out a wide range of ship-building tasks, but they specialise in welding and sheet metal work, interior and outfitting work or pipe fitting and machinery installations. They produce structural components, spare parts and fixtures for a ship following work drawings, and fit ventilation equipment, pipework and insulation. **Jobs:** the shipyard industry.
Further Qualification in Plate and Sheet Metal Technology
Holders of a Further Qualification in Plate and Sheet Metal Technology work with sheet metal and/or heavy plate, and to some extent also steel structures. They cut sheet metal following work drawings and using a plate cutter or a flame cutter, and are adept in measuring, marking out and making flat pattern layouts. They use folding and rounding machines and press tools and are competent in various welding techniques. Holders of this qualification may have the competence to use a plate machining centre or a laser and/or submerged cutting equipment. They conduct inspection and quality control measurements and carry out anti-corrosion finishing and protection measures. They use lifting and transfer equipment safely.

Jobs: metal industry companies.

Further Qualification in Metal Processing
Holders of a Further Qualification in Metal Processing supervise process maintenance and control a process. In the field of actual production, they may specialise in processing or further processing of molten metal; in the field of hydrometallurgy, in leaching and extraction-production or electrolysis; in the field of metal working, in hot forming, cold forming, heat treatments, pickling and washing; or in shearing, sawing, die-cutting and machining. They also have a strong competence in materials, electrical and automation technology, hydraulics and pneumatics, information technology, environmental protection and quality control.

Jobs: basic metal industries, e.g., steel factories.

Further Qualification for Industrial Pipefitters
Holders of a Further Qualification for Industrial Pipefitters install pipe systems and their fittings, valves and adjustment devices. Based on work diagrams and installation drawings, they cut, form and shape pipe components, make extension and branch fittings, and weld these together. Qualification holders weld small pipes using the gas welding process, and they have at minimum an EWF Fillet Welder's Diploma in using one basic material and welding process. They make and install pipe supports and carry out the required thermal stress relieving and forming. They conduct measurements during the installation period and after the pipe system is completed, and carry out additional tasks related to compensating for thermal expansion. They perform pressure tests and other tasks associated with commissioning the pipe system, such as rinsing, inspections and tests.

Jobs: companies specialising in manufacturing and installing pipe systems, process industry production plants.

Further Qualification for Toolmakers
Holders of a Further Qualification for Toolmakers have basic skills in one of the following tool groups: moulds, forming tools, die-cutting tools, milling tools or controls and clips. They design basic tools and produce them using manual, NC, and specialist machining techniques. Using various machine tools, they produce tool components and carry out repair machining. They are able to file and adjust instruments and carry out tasks related to tool maintenance and installation. They conduct hardness measurements and control measurements for adapters and form and location tolerances.
**Jobs:** metal and plastic product industries, mechanical workshops specialising in toolmaking.

**Further Qualification in Casting Technology**
Holders of a Further Qualification in Casting Technology use melting furnaces and their associated equipment. They specialise either in dead-mould or permanent mould casting. In dead-mould casting, they make the mould and the required cores and finish the cast pieces. In permanent mould casting, they insert the mould in the casting machine, maintain and clean the moulds, and finish the cast pieces. They recognise various faults and casting defects.

**Jobs:** foundries.

**Further Qualification in Foundry Patternmaking**
Holders of a Further Qualification in Foundry Patternmaking produce moulding patterns and core boxes following work plans. They finish and surface treat moulding patterns. In addition to a basic competence, they specialise in wooden or plastic patterns, design of moulding patterns, CAD design, preparation of CAM paths, CNC technology, 5-axis machining, modelling, specialist modelling techniques, rapid prototyping techniques or measurements and quality control.

**Jobs:** foundries, pattern workshops in timber product industry.

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**SPECIALIST QUALIFICATIONS**

**Specialist Qualification for Welders**
Holders of a Specialist Qualification for Welders master welding tasks at various levels using different processes and basic materials. They are competent in welding at least two steel grades that belong to different material groups (one of the selected steels in group 8 or 10). They have an IW diploma at fillet, plate and tube welding levels using MMA, MIG/MAG and TIG welding processes. They also have the competence of a welding instructor in one of the welding processes listed. Alternatively, they may have the competence of an IW welding advisor, IW welding instructor and IW welding teacher.

**Jobs:** machinery and metal product industries, other industries and civil engineering.

**Specialist Qualification for Mechanical Fitters**
Holders of a Specialist Qualification for Mechanical Fitters engage in assembly installations and installations related to the maintenance of machines and equipment. In addition to mechanical installations, they install hydraulic and pneumatic systems as well as control and automation devices. They use information management systems relevant to maintenance and look after installation measurements and testing as well as the associated reporting.

**Jobs:** machine and metal product industries, repair and maintenance tasks of other production plants.
**Specialist Qualification for Machinists**
Holders of a Specialist Qualification for Machinists understand complicated technical drawings and are able to plan machining tasks and select tooling settings with consideration to productivity and quality. They are able to work with numerically controlled and/or manual machine tools, or specialise in numerically controlled machining to the extent that they also master 3D CAM programming. They calculate production costs and throughput times and are able to draw up comparison and tender calculations. They are able to resolve faults systematically using a trouble-shooting method.

**Jobs:** mechanical and metal product industries, subcontracting mechanical workshops.

**Specialist Qualification for Platers**
Holders of a Specialist Qualification for Platers work with sheet metal and/or heavy plate, do welding or are specialised in planning and work direction. Qualification holders have the competence of an International Plate Welder using two different welding processes, and the competence of a fillet welder using a third welding process, or they have competence in submerged arc welding, plasma welding, spot welding or seam welding processes. They perform measurements and anti-corrosion finishing and protection measures. Those having specialised in planning and supervision plan the various work phases, and direct and supervise manufacturing and planning. They are able to train, supervise and coach other employees.

**Jobs:** metal industry companies.
Specialist Qualification for Toolmakers

Holders of a Specialist Qualification for Toolmakers produce tools and tool components based on work drawings. They carry out machining and possibly grinding, surface treatments and thermal treatments of tool components. They may specialise in producing milling blades or models. Another possible specialisation area is designing and planning tools, production and production systems, or modelling and preparing CAM paths. They may be engaged in quality control and perform measurements or material tests associated with this.

Jobs: metal and plastic product industries, engineering workshops specialising in tool-making.

Specialist Qualification in Casting Technology

Holders of a Specialist Qualification in Casting Technology are competent in various phases of the casting process, different metal smelting methods, and techniques for handling molten metal as well as methods for making patterns and cores. They master the device technology needed in a foundry and machinery and equipment maintenance. They have supervisory skills, and they are familiar with cost factors and quality requirements. They are skilled in the quality control of cast pieces, the basics of design techniques of cast pieces, and CAD design.

Jobs: foundries.

Specialist Qualification in Foundry Patternmaking

Holders of a Specialist Qualification in Foundry Patternmaking are able to plan the work phases of mould manufacturing and to select machine tools. They are able to make moulds based on work drawings using specialist machine tools and their CAD/CAM paths. They are familiar with quality requirements and able to perform measurements associated with foundry mould manufacture and work phases related to finishing and surface treatment. They are competent in cost calculations associated with foundry mould manufacture, and they are able to instruct and guide other employees.

Jobs: foundries, patterns producers in timber product industry.
Vocational Qualification in Vehicle Technology

Tasks in the field of Vehicle Technology require service skills and competence in a challenging and interesting technology sector. Vehicle technology professionals make sure that the continuously growing number of vehicles on the roads is maintained and that transports and traffic run smoothly. The operating environment in the sector has become more international. Professionals in this field work in a customer and quality-oriented manner. The vehicle sector has been growing rapidly in recent years, and people with customer service skills are needed in sales (Car Salespersons and Parts Salespersons) and repairs (Vehicle Mechanics, Small Machinery Mechanics and Vehicle Painters). In addition, cooperativeness, initiative and entrepreneurial skills are expected of those working in the sector. Challenges faced by them include continuously keeping up with and applying new technology and operating in an environmentally friendly manner.

**Jobs:** car and car accessories dealerships, workshops, service stations, transport operators, own enterprise.

**Vehicle Body Repairers** (study programme/competence area in Vehicle Body Repairs) are skilled in tasks associated with repairing damage to a vehicle’s chassis, body and body accessories. When dismantling a vehicle for repairs and assembling it after repairs have been completed, they must handle other vehicle technology, such as mechanical parts and electronics. They manage welding, joining, sheet metal work and metal gluing needed in the sector.

**Jobs:** car dealerships, vehicle body shops, small general repair shops with a large scope, own enterprise.

**Vehicle Painters** (study programme/competence area in Vehicle Painting) engage in basic and repair painting tasks in vehicle paint shops. They are familiar with the work phases of surface painting, mix and tone colours and perform spot and fading painting. They are knowledgeable in body plastic qualities and suitable pretreatment, cleaning, priming and surface painting materials and methods.

**Jobs:** car dealers, car paint shops, small general repair shops with a large scope, own enterprise.

**Car Salespersons** (study programme/competence area in Car Sales) work in vehicle sales tasks. They are knowledgeable in vehicle technology and marketing. The tasks involve

**Titles:**
- Vehicle Body Repairer
- Vehicle Painter
- Car Salesperson
- Vehicle Mechanic
- Parts Salesperson
- Small Machinery Mechanic
demanding customer service situations, where initiative, language skills and cooperative skills are needed. 

**Jobs:** car dealerships, own enterprise.

**Vehicle Mechanics** (study programme/competence area in Vehicle Technology) locate faults in the chassis and control devices of the most common car types, carry out troubleshooting, servicing and simple repairs of their engines, mechanical transmission, power transmission and electrical and fuel systems using manufacturers’ instructions and various testing instruments. Customer service is an essential part of a Vehicle Mechanic’s skills. 

**Jobs:** car dealers, workshops, service stations, specialist repair shops, transport operators, own enterprise.

**Parts Salespersons** (study programme/competence area in Parts Sales) master the sales of spare parts, equipment and accessories. A precondition for selling spare parts is knowledge of the vehicle structure. In this vocation, language, information technology and customer service skills are emphasised. 

**Jobs:** car dealerships, workshops and outlets specialising in spare part sales.
Small Machinery Mechanics (study programme/competence area in Small Motor Machinery Repairs) engage in servicing and repairing motorcycles, light-weight motorbikes, quads, snow scooters or boat engines. Their tasks may include not only the sales of maintenance services but also that of equipment and accessories. **Jobs:** enterprises focusing on the sales and servicing of small machinery, own enterprise.

**Vocational Qualification in Air Traffic Control**
Air Traffic Controllers safely control traffic in the sector for which they are responsible. They can simultaneously control several aircraft and ground traffic without causing unnecessary delays to air traffic. They act swiftly in varying traffic situations and apply optimal traffic solutions and control methods to each situation. They are service-oriented, cost-aware, cooperative and able to solve problems in their work. They assess the impact of their traffic solutions on future traffic situations. **Jobs:** airports, in which case their main task is air traffic services, and minor airports, where Air Traffic Controllers also assume responsibility for other air navigation services.

**Vocational Qualification in Aircraft Maintenance**
This qualification imparts the competence needed for servicing, modifying and repairing aircraft. The operating environment imposes strict quality requirements on the sector, and those engaged in this vocation are expected to be astute and careful. Good English language skills are useful in this highly international sector. A qualification taken in Finland is compliant with pan-European aviation regulations. **Jobs:** airlines, aircraft repair shops, the air force.

**Titles:**
- Aircraft Maintenance Technician
- Avionic Maintenance Technician

**Aircraft Maintenance Technicians** (study programme/competence area in Aircraft Maintenance) work in various aircraft maintenance and repair tasks following service instructions and international regulations. They service and repair a wide range of technical components in aircraft, for example, those containing mechanical parts and electronics. They manage the joining, sheet metal work and metal gluing needed in the sector. **Jobs:** aircraft and helicopter repair shops.

**Avionic Maintenance Technicians** (study programme/competence area in Avionics) service and repair electronic systems in aircraft. They are knowledgeable in aircraft electrical technology and the other associated technologies and systems. **Jobs:** aircraft and helicopter repair shops.
Vocational Qualification in Logistics
Holders of a Vocational Qualification in Logistics serve the customers of passenger or goods traffic in different situations based on their needs and expectations and observe good manners. They look after the customers’ and their own safety and are able to serve customers with different cultural backgrounds. They observe agreements and confidentiality, data protection and consumer legislation concerning both the customers and the employer. Determined by their choices, holders of this qualification work as a driver, bus driver, articulated vehicle driver, airport attendant or warehouse operative.

**Titles:**
- Driver
- Bus Driver
- Articulated Vehicle Driver
- Airport Attendant
- Warehouse Operative

**Drivers** (study programme/competence area in Transportation Services) transport goods and operate vehicles efficiently and safely, serving their customers as well and efficiently as possible. They are familiar with the roadworthiness requirements imposed on their vehicle, and they make sure that the vehicle and its accessories function properly and are safe. They master the checks to be made on the vehicle before starting to drive and the most common service steps. They load the vehicle to the maximum capacity permitted by the regulations and conditions and drive the vehicle safely, economically and responsibly. They are familiar with transport insurance issues and occupational safety regulations affecting their work.

**Jobs:** haulers, transports, trade, industries, companies based on airports, the public sector, or own enterprise.

**Bus Drivers** (study programme/competence area in Transportation Services) transport passengers and goods and operate vehicles efficiently and safely, serving their customers as well and efficiently as possible. They are familiar with the roadworthiness requirements imposed on their vehicle, and make sure that the vehicle and its accessories function properly and are safe. They master the checks to be made on the vehicle before starting to drive and the most common service steps. They load the vehicle to the maximum capacity permitted by the regulations and conditions and drive the vehicle safely, economically and responsibly. They are familiar with transport insurance issues and occupational safety regulations affecting their work.

**Jobs:** private bus companies, the public sector.
**Articulated Vehicle Drivers** (study programme/competence area in Transportation Services) transport goods and operate vehicles efficiently and safely, serving their customers as well and efficiently as possible. They are familiar with the roadworthiness requirements imposed on their vehicle, and they make sure that the vehicle and its accessories function properly and are safe. They master the checks to be made on the vehicle before starting to drive and the most common service steps. They load the vehicle to the maximum capacity permitted by the regulations and conditions and drive the vehicle safely, economically and responsibly. They are familiar with transport insurance issues and occupational safety regulations affecting their work.

**Jobs:** haulers, trade, industries, the state and municipalities.

**Airport Attendants** (study programme/competence area in Airport Services) carry out airside maintenance tasks, such as maintenance of runways and taxiways as well as aprons and the associated buildings. They also provide ground services, including tasks associated with aircraft arrival and takeoff and the intervening period. They also work in airport rescue services. Airport Attendants work carefully and responsibly, and they have a positive attitude towards others. They have to work systematically and adapt to a rushed work pace when necessary. Airport Attendants work both in teams and independently. They also perform basic driver’s tasks.

**Jobs:** companies providing ground services for airlines.
**Warehouse Operatives** (study programme/competence area in Storage Services) carry out warehousing tasks manually and mechanically, for example using forklifts or automatic devices. They draw up warehouse documents and keep warehouse accounts manually or using information technology. They store and transport goods, ensure recycling and use warehouse information systems.

**Jobs:** trade, industries, transports and the public sector.

**Vocational Qualification in Seafaring**
Holders of a Vocational Qualification in Seafaring show initiative and quality-awareness and are reliable, cooperative and customer-service oriented. They take into account the objectives of sustainable development in their work. They act cooperatively and unambiguously in various interactive situations. They act appropriately with people from different cultural backgrounds. They observe safe working techniques and methods that promote their health and ability to work and a good occupational safety culture. Qualification holders are able to work as watchkeeping ratings, and they act appropriately in any emergencies and safety operations. They work as repairers, ship’s electricians, deck officers or watchkeeping engineer officers.

**Titles:**
- Repairer
- Ship’s Electrician
- Deck Officer
- Watchkeeping Engineer Officer

**Repairers** (study programme/competence area in Deck and Engine Repairing) work as watchkeeping ratings in deck and engine services. They service and repair the ship’s machinery and equipment. They master the most common metal working and welding techniques and understand mechanical drawings. In their tasks, they take into account the most common safety and health issues. They may work as navigational or engineering watch ratings, boatswains or repairers after acquiring the work experience detailed in the relevant Decree (1797/2009).

**Jobs:** various ships, e.g., cargo ships, passenger ships and tankers.

**Ship’s Electricians** (study programme/competence area in Electrical Operation) perform tasks related to the installation, operation, maintenance and servicing of electrical machinery and equipment and automation systems in compliance with national and international regulations. They service, trouble-shoot, repair, inspect, adjust and test electrical equipment and systems on ships.

**Jobs:** various ships, e.g., cargo ships, passenger ships and tankers.
**Deck Officers** (study programme/competence area in Deck Officers) work as officers of navigational watch on the bridge. They steer the ship safely observing international rules. They operate bridge equipment and act appropriately in any emergencies. They also man the ship’s radio station.

**Jobs:** various ships, e.g., cargo ships, passenger ships and tankers.

**Watchkeeping Engineer Officers** (study programme/competence area for Watchkeeping Engineer Officers) work as officers of engineering watch. They operate and service the main and auxiliary engines of a ship, equipment associated with them and other machinery of the ship. They act appropriately in any emergencies, also as part of life raft and lifeboat crews, if necessary.

**Jobs:** various kinds of ships, e.g., cargo ships, passenger ships and tankers.
FURTHER QUALIFICATIONS

Further Qualification for Vehicle Crane Operators
Holders of this qualification operate and work with a vehicle crane or a loading crane. They perform high-quality work safely and in observance of the hoisting plan, taking into consideration the piece to be hoisted, the hoisting environment and external conditions. They master demanding hoisting tasks, including passenger hoisting, and the associated planning and responsibilities.
Jobs: hoisting or construction sector companies, own enterprise.

Further Qualification for Vehicle Body Mechanics
Qualification holders work in vocational tasks related to vehicle bodies in body shops. They inspect the damage to a vehicle and prepare a cost estimate and schedule for the work. They use measuring instruments and straightening devices for vehicles. They straighten surface parts and are familiar with component replacement techniques. Qualification holders are adept in the basic techniques of vehicle painting. They master spare parts systems, the English vocabulary of the field, and the provisions of consumer protection legislation to an adequate degree. They observe occupational safety regulations and instructions, waste management regulations and a quality system.
Jobs: vehicle body shops, own enterprise.

Further Qualification for Vehicle Painters
Holders of this qualification work in painting tasks in car paint shops. They use various paints, pastes, polishes and detergents as well as working methods and techniques in their work. They find the right colour tone and mix the paint using different colour components. Paint work is carried out in a painting chamber. Qualification holders are familiar with ordinary body structures, raw materials, body tools and techniques. They detach, mark and fix body structural components for painting. They carry out minor strengthening jobs of surface parts using manual tools. They observe occupational safety regulations and instructions, waste management regulations and a quality system. After painting, they re-install the external parts of the vehicle.
Jobs: car paint shops, body shops and factories, own enterprise.

Further Qualification for Car Salespeople
Qualification holders mainly work in the sales, purchases and marketing of new cars, trade-ins and their accessories. They are able to plan and implement shop floor advertising and decoration and to draw up marketing plans and written quotations. They offer the customer a correct product with the required optional equipment. They are able to work as buyers for a trade-in centre and can reliably determine the purchasing price and trade-in value of a car. They have adequate knowledge of the basic technical functions of the most common products, and they are able to inform customers about the product and its use. They are able to handle vehicles appropriately in presentation, handover, pricing and test-driving situations.
Jobs: car dealers, own enterprise.
Further Qualification for Car Mechanics
Holders of this qualification repair and service cars and vans. They locate the fault in a customer’s car using various repair shop measuring and testing devices. They acquire information about repair shop software and use circuit diagrams in their work. They repair the engines and engine auxiliary equipment of the most common cars and vans as well as clutches, gearboxes, drive and differential gears and propeller and drive shafts. They are able to perform checkups and repairs before technical inspections. They perform high-quality work economically and in observance of occupational safety regulations and instructions, waste management regulations and a quality system. 
Jobs: car repair shops.

Further Qualification in Cargo Handling
Holders of a Further Qualification in Cargo Handling are competent in securing and detaching goods and cargo units on vessels and quays and in warehouse areas. They observe the loading order and guide the crane and/or deck crane operator in transferring the load in various conditions. Qualification holders handle goods and cargo units using various cargo transfer equipment. They act appropriately when handling hazardous substances. They serve customers and use their company’s communication and information systems. Determined by their choices, they also engage in cargo securing, cargo tallying, deck lifting, crane or specialist machine work or port-specific tasks. 
Jobs: ports.

Further Qualification in Airport Services
Qualification holders methodically and systematically perform basic tasks of airport services. They observe the quality, occupational safety, security and environmental requirements of the sector and the norms applicable to their work. They maintain airport premises and move and drive appropriately in the airport area, also in exceptional circumstances. Determined by their choices, they also work in three of the following areas: (1) airport maintenance, (2) vehicle and equipment engineering, (3) aircraft and airport ground services, (4) rescue operations, and (5) terminal services and security. 
Jobs: airports.

Further Qualification for Bus Drivers
Qualification holders operate a bus safely and economically, observing regulations and good customer service practices. They master proactive driving in various road conditions and also during unexpected events and are able to act appropriately in case of accidents. Qualification holders ensure that their vehicle is roadworthy, assess its service needs and are also personally able to replace the most common spare parts. 
Jobs: bus operators, municipalities, own enterprise.
Further Qualification for Small Machinery Mechanics
Qualification holders service, repair and adjust small motor-driven machinery. They operate and test the small machinery they repair, observing occupational safety in their work. Qualification holders are familiar with the structures of commonly used small machinery and their auxiliary equipment and their fuel and electrical systems. They are competent in receiving orders and jobs and preparing cost estimates. They determine the faults and service and repair needs of small machines. If necessary, they instruct the customer in operating the machine. They are familiar with warranty systems and observe their terms and instructions.
Jobs: enterprises focusing on the sales and servicing of small machinery, own enterprise.

Further Qualification for Heavy Vehicle Mechanics
Holders of this qualification work in professional tasks in repair shops as specialists of the area of their choice. The qualification is divided into three competence areas: lorry technology, bus technology and industrial machinery technology. Qualification holders inspect, service and repair the most common heavy goods vehicles, trailers and machinery as well as refrigeration equipment. They use measurement and testing instruments in their work. Qualification holders master the most common electrical and electronic systems of vehicles and use circuit diagrams in their work.
Jobs: haulers and bus companies, repair shops, repair shops for working machinery.

Further Qualification for Parts Salespeople
Qualification holders work as salespeople in vehicle dealerships or spare part trade. They design and produce shop advertising, sales shelves and decoration and prepare marketing plans and written quotations when necessary. They may specialise in spare part services for light or heavy duty vehicles, working machinery or small machinery. They know how to offer the customers correct spare parts, for which purpose they need to be familiar with the overall structure of the vehicle and/or machine, the way various equipment and components function and the terms of repair associated with these. If necessary, they provide customers with information on products and their use and advice on statutory issues. They order and dispatch products and inspect incoming goods. They price and invoice the products sold.
Jobs: car dealerships, spare part outlets.

Further Qualification in Warehousing
Warehouse operators’ tasks generally include reception, storage, picking and packaging of goods, loading of lorries and dispatching and handing over goods. Warehouse Operators also look after the documents, stocktaking and stock balance monitoring of the warehouse. They may also be responsible for the purchases and bookkeeping of the warehouse. In large warehouses, Warehouse Operators manage the warehouse, while in smaller ones, they are personally involved in handling the goods.
Jobs: trade, industries, transports and the public sector.
Further Qualification for Drivers of Articulated Vehicles
Qualification holders work as drivers of articulated vehicles in companies in the sector, employed by industries or as independent entrepreneurs. They load the vehicle, operate an articulated vehicle, and safely and economically transport the load following their instructions and regulations in various driving conditions. Qualification holders are familiar with the roadworthiness requirements of their vehicle and are able to carry out the required checks before departing. They recognise the most common faults in the vehicle, replace spare parts and make preparations for repairs for the service staff. Qualification holders have customer service skills. They act economically, are able to market services and use the required information technology. They use the various types of auxiliary equipment in their vehicle and are knowledgeable about licenses required by the transport type and drawing up documents.
Jobs: transport sector companies and enterprises in other sectors that transport the goods manufactured by them, own enterprise.

Further Qualification in Timber Lorry Transport
Holders of this qualification work as drivers of timber lorries for an employer or as independent transport entrepreneurs in Finland or abroad. They load timber onto the vehicle using a crane safely and in observance of regulations. They look after the condition, maintenance and repairs of the vehicle. They store and measure timber and perform reception measures.
Jobs: transport companies, own enterprise.

SPECIALIST QUALIFICATIONS

Specialist Qualification for Car Salespeople
Qualification holders work in tasks requiring specialist skills in the sector associated with either car or machinery sales or spare part and accessories services. They plan sales campaigns, acquire new customers and identify the needs of special customer groups. They market products in their area of specialisation. They master tasks related to sales planning and reporting and prepare the required documents. They manage demanding situations involving customers and authorities. They manage the most common customer service, sales and negotiation situations in a foreign language. They take part in preparing development plans for the staff of their unit.
Jobs: car dealerships, own enterprise.

Specialist Qualification for Supervisors in Vehicle Technology
Qualification holders work in various supervisory tasks in the organisations of car repair shops. They direct the functions of a car dealership in cooperation with other managers. They are fa-
familiar with factors affecting the profitability of a repair shop and are able to price the services in a profitable manner. They conduct staff development discussions and set goals for their team. In their work, they take into account work-time legislation and collective agreements applicable to their sector, as well as the rights and duties of employers and employees. They are familiar with the common marketing methods of repair shop services, trading legislation, contractual terms and contract practices.

**Jobs:** car dealerships.

**Specialist Qualification for Vehicle Body Mechanics**
Qualification holders work in vehicle body repair tasks and the associated supervisory, induction training and organisation work or as an entrepreneur in the sector. They carry out demanding repairs to vehicle chassis and bodies of utility vehicles and cars, observing the terms of repair, profitability and consumer protection legislation in their work. They are familiar with insurance companies’ assessment and settlement procedures and act accordingly. Qualification holders use various measurement instruments and techniques for assessing damage. They work as experts in planning repair shop operations together with other specialists. If necessary, they produce machinery, equipment and tools plans for the repair shop. They are familiar with straightening devices of different types and the measurement techniques and instruments used with them.

**Jobs:** car dealerships, car body shops.

**Specialist Qualification for Vehicle Painters**
Holders of this qualification paint vehicles and carry out the related induction training, supervisory and organisational tasks in car paint shops, repair shops and factories. They carry out demanding vehicle painting tasks of utility vehicles and cars, observing the terms of repair, profitability and consumer protection legislation. They plan and create demanding pin-stripping, lettering and images on vehicles. They work as experts in planning car paint shop operations together with other specialists. If necessary, they draw up machinery, equipment and tools plans for the paint shop.

**Jobs:** car paint shops, repair shops and factories.

**Specialist Qualification for Vehicle Mechanics**
Qualification holders work in repairs and maintenance of cars, lorries or buses requiring specialist skills. The qualification offers two competence areas, or those of car technology and lorry and bus technology. Qualification holders master demanding servicing, trouble-shooting and repair tasks of vehicle technology. They direct their own and their unit’s repair activities in observance of the organisation’s quality targets, vehicle sector repair terms and consumer protection legislation. They can work as team leaders or workplace instructors. In their work, they make use of the latest repair shop technology in a versatile manner.

**Jobs:** car dealerships and repair shops.
Specialist Qualification in Cargo Handling

Holders of a Specialist Qualification in Cargo Handling organise, direct and develop cargo handling in a port. They work together with ship crews and use information systems in planning cargo handling operations. They plan, organise and implement ship loading or unloading operations. They also report on and assess cargo handling data. They comply with legislation and agreements applicable to the sector. As supervisors, they work interactively and with the aim of developing the work community, and they assess and develop their supervisory skills. Determined by their choices, they may also work in forwarding, ship clearance or warehousing operations.

**Jobs:** ports.

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Specialist Qualification for Haulage Organisers

Holders of this qualification work in supervisory tasks in either passenger or goods transport companies. They direct the operations of a haulage company and direct them together with other managers. They are familiar with the principles of marketing and agreements and legislation applicable to the operations of a haulage company, and they are able to apply these in practical working life situations. They are familiar with the functioning of the basic technology and auxiliary equipment of the hauler’s fleet. Their tasks include marketing, customer service, ensuring financial profitability and developing activities. They take part in selecting employees and foster a good workplace atmosphere. They give induction training to the company’s employees in their jobs and make decisions in their work, both independently and together with other members of the work community.

**Jobs:** companies transporting goods or passengers.

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Specialist Qualification for Driving Instructors

Holders of this qualification instruct students in a driving school guided by the criteria for obtaining a driving licence. They work in versatile and demanding customer service tasks. In their actions, they take into account legislation applicable to the field. Based on their specialisation, qualification holders may instruct drivers of cars, lorries, buses or motorcycles, or work as administrators of driving licence examinations.

**Jobs:** driving schools, institutes of learning giving driver training, and companies receiving driving licence examinations.
Specialist Qualification in Warehousing
Qualification holders are able to organise the warehouse process and complete its work phases. They are competent in receiving, picking, packaging and dispatching goods appropriately. They are adept in processing various types of transport documents. They are able to serve customers and act as supervisors. They know how to package and dispatch hazardous substances and chemicals appropriately. They are able to plan the schedules for outbound and inbound goods and local distribution routes. They know how to draw up cargo space calculations and determine charges in domestic piece goods transports.

Jobs: warehouses and purchasing departments of the industries, trade, haulers and forwarders, Customs and ports as well as other sectors.
VOCATIONAL QUALIFICATIONS

Vocational Qualification in Information and Telecommunications Technology
Qualification holders engage in production, installation, servicing and maintenance tasks, observing occupational, electrical work and electrical safety regulations and confidentiality regulations. Electronics Assemblers with this qualification carry out testing, repairs and commissioning in electronics production, or maintenance, installation and customer-service tasks associated with electronic applications. Essential areas of competence are operator tasks in the electronics industry production automation and testing of finished products, or installation and servicing of electronic equipment.

Jobs: the electronics industry, installation and service enterprises, own enterprise.

Electronics Assemblers (study programme/competence area in Information and Telecommunications Technology) carry out testing, repair and commissioning tasks in electronics manufacturing, or maintenance, installation and customer-service tasks associated with electronic applications. Essential areas of competence are operator tasks in the electronics industry production automation and testing of finished products, or installation and servicing of electronic equipment.

Jobs: the electronics industry, installation and service enterprises, own enterprise.

Titles:
- ICT Technician
- Electronics Assembler

ICT Technicians (study programme/competence area in Information and Telecommunications Technology) install and commission computer and telecommunications hardware. Essential competence areas include telecommunications and computer hardware for residential and business premises, their installation, and their configuration for user requirements.

Jobs: companies maintaining information networks, enterprises offering ICT services.
FURTHER QUALIFICATIONS

Further Qualification for Electronics Assemblers
Qualification holders master installations, servicing and repairs in two of the following areas: industrial electronics equipment, integrated industrial systems, industrial production control, television technology, video technology, audio technology, and a sector-specific specialisation. They have a valid certificate for Electrical Safety Code Examination 3. They ensure that the work delivered is of a high quality in terms of product usability and marketability, and they are able to combine a professional standard of work with good marketing and service.
**Jobs:** the electronics industry, installation and service enterprises, own enterprise.

Further Qualification for Computer Mechanics
Qualification holders install desktop and laptop computers in the PC environment and carry out upgrades, repairs and maintenance, also based on English instructions, and are able to serve customers. They have a valid certificate for Electrical Safety Code Examination 3. They master peripherals and operating systems as well as information security and virus risks. They have competence in the architecture, hardware, connections, protocols, software, commissioning and operation of local area networks. They also master two of the following areas: local area network services, router networks and public LAN services, software installations, special systems, and computer electronics.
**Jobs:** enterprises specialising in the installation, use, servicing and repairs of computers, peripherals and networks, own enterprise, the public sector, industries.

Further Qualification for Telecommunications Fitters
Qualification holders carry out the required installations, software installations, modifications, troubleshooting and repairs, testing, measurements, and services in two of the following areas: cabling and network measurements, telephone exchanges and systems, switching centres, backbone and transmission networks, wireless networks, Internet and broadband technology, access control and security systems, and cable television and aerial systems. They understand the significance of uninterrupted and interference-free telecommunications.
**Jobs:** telecommunications enterprises.

SPECIALIST QUALIFICATIONS

Specialist Qualification for Electronics Assemblers
Holders of this qualification carry out installations, repairs and services of industrial and/or consumer electronics equipment. They are able to work in work-guidance and instruction tasks. In all their activities, they observe occupational safety and electrical safety regulations. They have a valid certificate for Electrical Safety Code Examination 3.
**Jobs:** the electronics industry, installation and service enterprises, own enterprise.
Specialist Qualification for Computer Mechanics

Qualification holders carry out installations, services and testing, also based on instructions in English. They may work as supervisors and project leaders. They give induction training to new employees within the scope of their job descriptions. They plan, develop and direct the work of their team. Through work and hardware planning, they are able to find cost-effective solutions while doing their jobs, and they are competent in drawing up invitations to tender and drawing up tender calculations for their own work. They are able to draw up information security plans, carry out the planning and the tender calculation for a company LAN network installation site and set up the project. They have a valid certificate for Electrical Safety Code Examination 3.

Jobs: enterprises specialising in the installations, use, servicing and repairs of computers, peripherals and networks, own enterprise, the public sector, industries.
Specialist Qualification for Telecommunications Fitters
Holders of this qualification are able to plan a small-scale telecommunications and information network, taking into consideration communications market and construction legislation as well as official regulations applicable to the building of information networks. They master work planning and the requisite installations, software installations, modifications, troubleshooting and fault repairs, testing, measurements and services in two of the following areas: cabling and network measurements, telephone exchanges and systems, switching centres, backbone and transmission networks, wireless networks, Internet and broadband technology, access control and security systems, and cable television and aerial systems.
Jobs: telecommunications enterprises.

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