



FINNISH NATIONAL
BOARD OF EDUCATION

Requirements for Vocational Qualifications

VOCATIONAL QUALIFICATION IN LAND SURVEYING 2010

Study Programme/Specialisation in
Land Survey Technology,
Surveyor

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REGULATION

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Vocational upper secondary education and training providers
Qualification committees in the field

Acts on which the issuing of the Regulation
is based:

Act 630/1998, Section 13 (2)
Decree 811/1998, Section 10 (12)
Act 631/1998 13, Section (2)

Repeals National Board of Education Regulations
28.4.1999 no. 12/011/1999
and for this qualification the following Regulations
1.8.2001 no. 42/011/2001
19.6.2002 no. 34/011/2002
27.8.2004 no. 28/011/2004
30.9.2005 no. 32/011/2005
13.2.2007 no. 5/011/2007

REQUIREMENTS FOR VOCATIONAL
QUALIFICATIONS
Vocational Qualification in Land Surveying

Amends National Board of Education Regulation
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The Finnish National Board of Education has rendered its decision regarding the qualification requirements (national core curriculum and competence-based qualification principles) of the Vocational Qualification in Land Surveying in accordance with the annex.

The Regulation must be observed in all upper secondary education and training (curriculum-based education and training) and competence-based qualifications started after 1 August 2010. All education and training and competence-based qualifications that have started prior to the entry of this Regulation into force may be completed in accordance with Regulations 28.4.1999 no. 12/011/99 by 31 July 2020, subject to the provisions of other statutes and Regulations.

In curriculum-based education and training, the education provider must draw up and approve a curriculum in compliance with the terms stipulated in these qualification requirements.

In providing education and training leading to a competence-based qualification, the education provider determines the educational content and provision in accordance with the qualification requirements. An opportunity to complete a competence-based qualification must be provided to all candidates.

The education provider, qualification provider and qualification committee shall comply with the terms stipulated in this Regulation and shall not deviate in any way from it.

Director General Timo Lankinen

Chief technologist Arto Pekkala

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INTRODUCTION

A vocational qualification can be completed both as a curriculum or competence-based qualification. The requirements of a vocational qualification include both the requirements of the upper secondary vocational qualification and the requirements of a competence-based qualification and therefore their terminology has been made more uniform. The requirements of a vocational qualification is a regulation and it guides the providers of both curriculum-based training as well as competence-based qualifications, and the electronic version of the qualification requirements document allows one to distinguish, when necessary, the sections that relate to vocational upper secondary education and training (curriculum-based training) and competence-based training. Chapters 1 and 4 together with the parts describing the vocational field and the value basis in Chapter 9 are common. Chapters 2, 5, 6, 7 and 8 only concern vocational qualifications completed in vocational upper secondary education and training and Chapter 3 those completed as competence-based qualifications.

The term module of a qualification compares with the term of study entity used earlier in curriculum-based training. A qualification consists of vocational study modules and in vocational upper secondary education and training also of core subjects and free choice modules. Additional modules can be included in a qualification when that is necessary in view of working life sector specific or local vocational requirements or the need for in-depth professional skills of the would-be qualification holder.

The requirements of a vocational qualification state the objectives set for the qualification and study programme or specialisation, structure of qualification, module specific skills requirements or objectives, targets of assessment and assessment criteria for core subjects as well as the ways of demonstrating vocational skills in the case of vocational study modules. These requirements also include other provisions concerning vocational upper secondary education and training as well as competence-based qualifications.

The requirements of vocational qualification modules and the objectives of core subjects have been defined as learning outcomes (knowledge, skills, competence). This forms the basis for describing the targets of assessment through mastering the work process, work method, equipment and material as well as underpinning knowledge and the key competences for lifelong learning.

An education provider approves a curriculum for upper secondary vocational education and training based on the qualification requirements. When arranging preparatory training for competence-based qualifications, the provider decides its contents and how to arrange it in compliance with the qualification requirements.

OBJECTIVES AND STRUCTURE OF THE VOCATIONAL QUALIFICATION IN LAND SURVEYING

1.1 OBJECTIVES OF THE VOCATIONAL QUALIFICATION IN LAND SURVEYING

Surveyors who have gained the vocational qualification in land surveying possess diverse, broad-based professional skills, which they continually develop. They are reliable, quality conscious and proactive. They are also mindful of the importance of customer service and able to cooperate with others. They must know how to apply the skills and knowledge they have gained in changing professional situations, whether in the service of different employers or working as independent entrepreneurs. They can see how the contribution they make is part of a larger whole, and they are able to take account of the functions and expectations of professionals in closely related sectors. Land surveyors are familiar with the recommendations, instructions, regulations and legislation that apply to the work they do, and they carry out their tasks in accordance with quality requirements and the statutes in force. They can plan and schedule their work on the basis of documentation, designs and drawings. They handle their tools with care. Professionals in the field know how to present and assess their work, draw up the necessary reports and produce printouts.

Surveyors who have gained the vocational qualification in land surveying are familiar with and can use the databases, documentation and registers associated with their field and read plan drawings and charts connected with land use planning and registration (real estate formation). They have the mathematical skills necessary for survey work and making calculations, and are aware of the physical factors that affect measurements.

Professional land surveyors know how to act in various interactive situations in a dynamic manner and showing an ability to cooperate. They can express their views clearly and in a way that inspires confidence.

They also take the importance of safety and maintaining work ability into full consideration when they work.

When engaged in field tasks connected with urban planning, construction and environmental impact, surveyors have to be environmentally aware and act in accordance with the principles of sustainable development.

People working in the land surveying sector know how to use information technology, which in that field relates to the use of measuring devices, data processing software, registers and maps, the shared use of geographical information and networking. Competence in information transfer speeds up the work and allows data to be used effectively, regardless of where the work is being done.

The internationalisation of land surveying and the chance to be involved in assignments abroad pose new challenges for surveyors, in addition to their ordinary professional skills. The skills of an international player include mastering foreign languages, understanding the culture of the target country, being service-minded, adapting to different conditions and a mastery of information technology. Furthermore, Finland's bilingual status presents challenges when records of cadastral surveys are being studied and when operating in a bilingual area.

Surveyors who have gained the vocational qualification in land surveying have, in addition to the basic skills associated with the field, more specialised knowledge of surveying and measuring, cadastral tasks, tasks relating to land use planning, soil and environmental research, or cartographical and geographical information. They are well qualified to develop as a result of changes to the profession, equipment, the law and the demands of the job.

In addition, vocational upper secondary education and training should support the development of students, enabling them to become good and balanced individuals and members of society, and provide them with the knowledge and skills they need for further studies, their personal interests and the versatile development of their personalities. It should also provide support for lifelong learning (Finnish Act 630/98, section 5).

1.2 THE STRUCTURE OF THE VOCATIONAL QUALIFICATION IN LAND SURVEYING

VOCATIONAL QUALIFICATION IN LAND SURVEYING, SURVEYOR, 120 CREDITS	
IN VOCATIONAL UPPER SECONDARY EDUCATION	IN COMPETENCE-BASED QUALIFICATION
4. Vocational modules, 90 credits	4. Vocational modules
The qualification comprises a minimum of 20 credits of on-the-job learning, a minimum of 5 credits of entrepreneurship and a minimum of 2 credits of final project.	
4.1 Obligatory module for all, 10 cr	4.1 Obligatory module for all
4.1.1 Basic surveying, 10 cr	4.1.1 Basic surveying

<p>4.2 Optional modules for all A total of 60 cr to be selected from 4.2–4.3</p> <p>4.2.1 Taking measurements, 20 cr</p> <p>4.2.2 Cartographical and geographical information, 20 cr</p> <p>4.2.3 Basic cadastral surveying, 10 cr</p> <p>4.2.4 Land use planning, 10 cr</p> <p>4.2.5 Soil and environmental research, 10 cr</p> <p>4.2.6 Special cadastral surveying, 10 cr</p> <p>4.2.7 Infrastructure surveying, 10 cr</p> <p>4.2.8 GIS data processing, 10 cr</p> <p>4.2.9 Mine surveying, 10 cr</p> <p>4.2.10 Module from vocational upper secondary qualifications</p> <p>4.2.11 Module from further vocational qualifications</p> <p>4.2.12 Module from specialist vocational qualifications</p> <p>4.2.13 Locally offered modules, 0–10 cr</p>	<p>4.2 Optional modules for all A total of 6 modules to be selected. Modules 4.2.1 and 4.2.2 equal two modules.</p> <p>4.2.1 Taking measurements</p> <p>4.2.2 Cartographical and geographical information</p> <p>4.2.3 Basic cadastral surveying</p> <p>4.2.4 Land use planning</p> <p>4.2.5 Soil and environmental research</p> <p>4.2.6 Special cadastral surveying</p> <p>4.2.7 Infrastructure surveying</p> <p>4.2.8 GIS data processing</p> <p>4.2.9 Mine surveying</p> <p>4.2.10 Module from vocational upper secondary qualifications</p> <p>4.2.11 Module from further vocational qualifications</p> <p>4.2.12 Module from specialist vocational qualifications</p>
<p>4.3 Other optional modules in vocational upper secondary education and training, 0–10 cr</p> <p>4.3.1 Entrepreneurship, 10 cr</p> <p>4.3.2 Workplace instructor training, 2 cr</p> <p>4.3.3 In-depth and enhancing vocational modules, 0–10 cr</p> <p>4.3.4 Core subjects, 0–10 cr</p> <p>4.3.5 General upper secondary studies</p>	
<p>4.4 Modules providing individual in-depth vocational competence (modules that expand the scope of a vocational upper secondary qualification)</p> <p>4.4.1 Business operations, 10 cr</p> <p>4.4.2 Modules from vocational qualifications (vocational upper secondary qualifications, further vocational qualifications and specialist vocational qualifications)</p> <p>4.4.3 Locally offered modules providing in-depth vocational competence in curriculum-based vocational education and training</p>	<p>4.4 Modules providing individual in-depth vocational competence (modules that expand the scope of a vocational upper secondary qualification)</p> <p>4.4.1 Business operations</p> <p>4.4.2 Modules from vocational qualifications (vocational upper secondary qualifications, further vocational qualifications and specialist vocational qualifications)</p>

IN VOCATIONAL UPPER SECONDARY EDUCATION		
5. Core subjects in curriculum-based vocational education and training, 20 credits		
5.1 Compulsory modules for all	Compulsory	Optional
5.1.1 Mother tongue	4 credits	0–4 credits
5.1.2 Second national language	1 credit	0–4 credits
5.1.2.1 Second national language, Swedish	1 credit	
5.1.2.2 Second national language, Finnish	2 credits	
5.1.3 Foreign language	2 credits	0–4 credits
5.1.4 Mathematics	3 credits	0–4 credits
5.1.5 Physics and chemistry	2 credits	0–4 credits
5.1.6 Social, business and labour-market subjects	1 credit	0–4 credits
5.1.7 Physical education	1 credit	0–4 credits
5.1.8 Health education	1 credit	0–4 credits
5.1.9 Arts and culture	1 credit	0–4 credits
5.2 Optional modules		
5.2.1 Optional additional modules to compulsory core subjects, see Chapters 5.1.1–5.1.9 above		
5.2.2 Environmental studies		0–4 credits
5.2.3 Information and communications technology		0–4 credits
5.2.4 Ethics		0–4 credits
5.2.5 Cultural knowledge		0–4 credits
5.2.6 Psychology		0–4 credits
5.2.7 Entrepreneurship		0–4 credits
	16 credits	4 credits
<p>In education provided in Swedish, the scope of studies in the second national language is 2 credits, and the scope of the compulsory core subjects in vocational qualification is 17 credits and the scope of optional modules is 3 credits.</p> <p>The scope of compulsory studies in both physical education and health education is 1 credit. Education provider can divide the compulsory studies in physical education and health education differently, but yet in such a way that their overall scope totals two credits.</p>		
6. Free-choice modules in vocational upper secondary education, 10 credits		
The qualification modules comprise a minimum of 1.5 credits of student counselling		

Principles of a vocational qualification

Vocational qualifications are made up of vocational modules, which are either compulsory or optional. Curriculum-based qualifications also include compulsory and optional core subjects as well as free choice modules. Furthermore, a qualification can be personalised by including more modules, which expand the qualification, when that is necessary from to meet sector specific working life requirements or local vocational needs and to enrich the candidate's vocational skills. Qualification specific rules on optional modules are presented above in the table introducing the Vocational Qualification in Land Surveying.

Student (curriculum-based training) or candidate (competence-based qualifications) can also include modules from other vocational qualifications in the vocational upper secondary qualification.

To improve his/her eligibility to pursue further studies a student can choose general upper secondary studies, even take the matriculation examination. These studies can compensate for core subjects, other optional qualification modules and free choice studies.

To facilitate making choices and validation of prior learning, the compensation principles for studies completed or to be completed in a general upper secondary school have been described in Section 5 Core subjects. Defining the principles of compensation also promotes cooperation between education providers and the use of common training provision. Completing the whole qualification is the primary goal in education and training leading to a qualification provided in accordance with the Act on Vocational Education and Training. A student can also take a vocational qualification one or more modules at a time to give a more profession specific result when it is appropriate considering the individual's learning abilities, life situation or employability. The student must have flexible opportunities to complete the qualification at a later date. In these kinds of situations the education provider draws up a plan, preferably in cooperation with the employer, for completing the qualification.

1.3 KEY COMPETENCES FOR LIFELONG LEARNING

These key competences for lifelong learning are taken to mean such competence as is needed in continuous learning, in seizing future and new situations as well as in coping with the changing working life environment. They are an important part of vocational skills and reflect an individual's intellectual flexibility and ability to manage different situations. They increase the vocational civilisation and civic readiness needed in all fields and help the students or candidates to keep up with the changes in society and working life as well as to act under changing conditions. They also play a major part in one's quality of life and development of personality.

In addition to common emphases of the previous core curriculum of vocational upper secondary education, the Requirements of competence-based qualifications and key competences common to all vocational fields, the key competences for lifelong learning are considered to include cross-curricular themes from basic and general upper secondary education together with the recommendations for the key competences for lifelong learning 2005/0221 (COD) made by the European Union Parliament and the Commission.

The key competences for lifelong learning are included in the objectives of the requirements of vocational qualification modules and their assessment criteria. The key competences for lifelong learning to be assessed separately consist of the following: learning and problem solving, interaction and cooperation, vocational ethics and health, safety and ability to function.

Key competences for lifelong learning are

1. Learning and problem solving
2. Interaction and cooperation
3. Vocational ethics
4. Health, safety and ability to function
5. Initiative and entrepreneurship
6. Sustainable development
7. Aesthetics
8. Communication and media skills
9. Mathematics and natural sciences
10. Technology and information technology
11. Active citizenship and different cultures

Description of the key competences for lifelong learning

Learning and problem solving

The student or candidate plans his/her activities and develops himself/herself and the work. He/she assesses his/her own competence, solves problems and makes decisions and choices in his/her work. Student/candidate is adaptive, innovative and creative in his/her line of work, acquires information and analyses, assesses and applies it.

Interaction and cooperation

The student or candidate acts appropriately in different interactive situations and also expresses different views clearly, constructively and in a way that creates confidence. He/she works cooperatively with different people and as a member of a team and also treats all people equally. He/she observes common rules of behaviour and regulations. He/she makes use of the feedback given.

Vocational ethics

The student or candidate observes the value basis of the profession. He/she is committed to his/her work and acts responsibly following the contracts made and work ethics.

Health, safety and ability to function

The student or candidate acts safely and responsibly at work and leisure as well as in traffic and also leads a healthy life and maintains his/her ability to function and work. He/she works ergonomically and takes physical exercise needed in the profession and also acts in a manner that prevents the dangers and health hazards in the working environment.

Initiative and entrepreneurship

The student or candidate works towards completing the objectives set. He/she takes initiative and acts in a customer-oriented way as an employer and/or entrepreneur. He/she plans activities and works to reach the objectives set. He/she acts economically and is result-orientated. He/she sets personal goals in line with the overall objectives.

Sustainable development

The student or candidate acts according to the ecological, economical, social and cultural principles sustainable development in the profession. He/She observes the rules, regulations and contracts of sustainable development prevailing in the sector.

Aesthetics

The student or candidate takes into consideration the aesthetic factors in his/her line of work. He/she contributes to and maintains the niceness and aesthetics of the working environment.

Communications and media skills

The student or candidate uses his/her language skills in a way that is appropriate, varied and interactive considering the situation. Student/candidate observes, interprets and assesses different media products critically. He/she uses the media and information technology as well as produces media material.

Mathematics and natural sciences

The student or candidate uses basic mathematics to solve mathematic equations at work and in everyday life. He/she uses for example formulas, graphs, patterns and statistics to help solve work related assignments and problems. Student/candidate applies methods and practices that are based on the laws of physics and chemistry at work.

Technology and information technology

The student or candidate makes versatile use of technologies used in his/her profession. He/she considers the technological benefits, limitations and risks. He/she makes versatile use of computer technology as a professional and a citizen.

Active citizenship and different cultures

The student or candidate participates constructively in the activities and decision making of the community. He/she acts according to his/her rights and responsibilities both at work and in everyday life. He observes the acts on equality. He/she acts appropriately and considering the requirements of working life with people from different cultural backgrounds both at home and in international operations.

1.4 ELIGIBILITY FOR FURTHER STUDIES

According to Paragraph 4 of the Vocational Education and Training Act, vocational upper secondary studies grant the student eligibility to further his/her studies in universities or universities of applied sciences.

IMPLEMENTATION OF NATIONAL REQUIREMENTS IN CURRICULUM-BASED VOCATIONAL EDUCATION AND TRAINING

2.1 DESIGN AND CONTENTS OF THE CURRICULUM

According to the Vocational Education and Training Act (630/1998, section 14) the education provider must endorse for its training a curriculum that is based on the qualification requirements mentioned in this document. It must contain the procedures that ensure that the education reaches the tasks and objectives (Act 630/1998, section 5). A curriculum must be approved separately for education provided in Finnish, Swedish and Saami and also for education in any other language when necessary. The curriculum of an education provider is a public document. The curriculum regulates and directs the education offered by the provider and all other activities closely related to it. To give the student protection under the law, the curriculum must provide adequate information about the modules and studies included in the qualification, assessment and arrangements concerning completion of the studies. The curriculum must be compiled so that it enables the students to individually select vocational studies as well as to complete general upper secondary studies and the matriculation examination. The curriculum also acts as a basis for internal and external evaluation and also allows evaluating the effectiveness of the education offered by the education provider.

The education provider reserves the recourses needed for the education. The education provider also sees that the curriculum allows the student to achieve the objectives set for the qualification, to receive enough teaching and counselling he/she needs regardless of the way the education is organized on each workday, also during on-the-job learning and skills demonstrations.

The curriculum consists of the common part for all the fields of vocational education and training and qualification specific part of the curriculum.

2.1.1 Common part of the curriculum

The common principles and procedures for all the upper secondary qualifications and core values of the education provider are defined in the common part of the curriculum.

The common part of the curriculum consists of at least

- ◆ providing education and training as curriculum-based vocational education and training, as training arranged at a workplace in connection with practical work assignments and as apprenticeship training (Act 630/1998, sections 3, 15 and 17)
- ◆ arranging education and training as contact teaching, distance, multi-modal (Act 630/1998, sections 15) and e-learning
- ◆ plans and methods for completing a module or modules as well as students' opportunities to add on to their studies and complete the whole qualification
- ◆ providing education in cooperation with other education providers and working life (Act 630/1998, sections 14 and 10)
- ◆ teaching related measures promoting community spirit, which provides an opportunity for reflecting values and getting to know our cultural heritage (Decree 811/1998, sections 9)
- ◆ common practices on performing student assessment (Act 601/2005, section 25a) in accordance with Chapter 7
- ◆ compliance with the regulations of Chapter 8
- ◆ staff development plan.

The education provider must include plans on how to promote equality, non-discrimination and sustainable development in the curriculum. When organising the education the education provider must also take into account the obligations in other statutes concerning education and training.

2.1.2 Qualification specific part of the curriculum

The qualification specific part of the curriculum determines the organisation of the vocational qualification modules and the core subjects, in cooperation with other education providers and working life. It also determines the timing of the education, learning environments and teaching methods, with the help of which the student can achieve the vocational skills requirements and objectives of the qualification.

The qualification specific part also lists the studies the training provider offers from other qualifications as well as the student's opportunities to complete more than one qualification. It includes the decision on the assessment plan for the vocational modules and core subjects, which is to include skills demonstrations and other assessment of competence.

Qualification specific part of the curriculum is to cover at least

- ◆ structure of the qualification of compulsory and optional vocational modules and core subjects
- ◆ progression, timing and sequence of studies
- ◆ provision of free choice modules
- ◆ a plan on the provision of individual in-depth vocational modules (modules enhancing a vocational upper secondary qualification)
- ◆ a plan on assessment of the modules and methods used for assessment of competence
- ◆ a plan on assessing vocational modules in a way that it includes a plan on implementation and assessment of skills demonstrations approved by the local board for vocational skills demonstrations
- ◆ locally offered modules, their skills requirements, targets of assessment and criteria as well as the objectives, targets of assessment and assessment criteria for the additional optional modules of compulsory core subjects.

2.1.3 Individual study plan

Vocational Education and Training Act (Act 630/1998, section 14) contains the provision of a student's right to make individual choices in his/her studies. Vocational Education and Training Decree (Decree 811/1998, sections 3, 4 and 12a) contains the provision of how to inform students of the training offered, of student counselling and recognition and validation of prior skills. In order that a student's right to make individual choices is possible, the education provider must prepare the student an individual study plan based on his/her individual starting point and update it throughout the training offered.

COMPLETING A VOCATIONAL QUALIFICATION AS A COMPETENCE-BASED QUALIFICATION

3.1 GENERAL ON COMPETENCE-BASED QUALIFICATION SYSTEM

The competence-based qualification system offers adults a flexible way of demonstrating, renewing and maintaining their vocational competence, or when duties change, qualifying for a new profession. In a competence-based qualification a person's vocational competence can be nationally and quality-wise acknowledged despite whether the skills have been acquired through working experience, studies or other activities. In the competence-based qualification system the employer side, employee side and the training sector work in close cooperation when developing the qualification structure, drawing up qualification requirements, planning and arranging competence tests as well as when assessing test performances.

Vocational qualifications, further and specialist vocational qualifications can be completed as competence-based qualifications. The Requirements of competence-based qualifications describe vocational skills as working life competence requirements. The qualifications are made up of modules, which are independent work entities.

3.2 ARRANGING COMPETENCE-BASED QUALIFICATIONS

The qualification committees appointed by the National Board of Education and comprising the representatives of employers, employees, teachers and when necessary self-employed persons, are responsible for arranging and controlling competence-based qualifications and they award qualification certificates. The qualification committees sign contracts on arranging competence-based qualifications with education providers and when necessary other communities and foundations. Competence-based qualifications must not be arranged without a valid contract with the qualification committee concerned.

3.3 COMPLETING A COMPETENCE-BASED QUALIFICATION

A competence-based qualification is completed by successfully demonstrating the skills required in practical work assignments and activities in a competence test. Each module must be assessed separately. Assessment is jointly carried out by representatives of employers, employees and the training sector. In vocational fields where self-employment is typical, this party is also to be considered when appointing assessors. The qualification committee passes the final decision on assessment. A qualification certificate can be awarded when all the modules required to make up the qualification have been completed successfully.

3.4 REQUIREMENTS OF COMPETENCE-BASED QUALIFICATIONS

The Requirements of competence-based qualifications define the modules to be included in the qualification and possibly the structure of specialisation, qualification contents, vocational skills required in each module, bases of assessment (targets and criteria of assessment) as well as ways of demonstrating vocational competence.

A module is a vocational sub-entity, which can be discerned as a separately assessed entity in a natural work process. The vocational skills requirements defined in modules focus on profession specific key activities, control of processes and vocational practices relevant in the field concerned. They include the skills commonly required in working life, social skills for example.

Targets of assessment and criteria are derived from the vocational skills requirements. Targets of assessment define the sectors of competence that special attention will be paid to. Defining the targets of assessment also make it easier to assess vocational competence in the work activity concerned. Assessment must cover all the targets listed in the Requirements of competence-based qualifications. Assessment criteria determine the quality and quantity levels for a successful performance.

The ways of demonstrating vocational skills include further instructions on how to complete a qualification. The vocational skills are, in the main, demonstrated in actual work assignments or tasks. The ways of demonstrating vocational skills may also include, for example, instructions on how a test performance can be supplemented, if necessary, in order for all the skills requirements to have been successfully met.

3.5 INDIVIDUALISATION IN COMPETENCE-BASED QUALIFICATIONS

Education provider is responsible for individualising the enrolment for a competence-based qualification and for preparatory training, completing the qualification as well as the acquisition of the vocational skills required. The National Board of Education has issued a separate regulation on individualisation.

3.6 ASSESSMENT OF VOCATIONAL SKILLS IN A COMPETENCE-BASED QUALIFICATION

The assessment of vocational skills must profoundly and carefully look into how the qualification candidate has shown that he/she masters what the skills requirements of the module concerned prescribe. The assessment criteria defined in the requirements for the competence-based qualification are to be used. In assessment, a variety of different and primarily qualitative assessment methods should be used. Using one method only does not necessarily yield a reliable result. Vocational field and qualification specific special features are taken into consideration in the assessment process in accordance with the qualification requirements.

If a person completing a qualification has reliable evidence of competence demonstrated earlier, the assessors assess its correspondence with the skills requirements described in the requirements for the competence-based qualification. The assessors suggest the document to the qualification committee for recognition as part of a competence-based qualification. If the candidate has earlier demonstrated his/her skills in one of the modules of this qualification either in curriculum-based education or in a competence-based qualification, the earlier completed qualification or its module must be presented for recognition as part of the competence-based qualification to be completed. There is no general time limit to be set for the skills acquired and demonstrated earlier but the validity of such skills can be verified. The qualification committee makes the final decision on the recognition of earlier demonstrated and reliably documented skills. If necessary, the candidate must demonstrate the correspondence of his/her skills with the skills requirements of the qualification in question.

Assessing vocational skills is a process where collecting assessment material and documenting the assessment process are of key importance. The representatives of working life and teachers carry out a careful and comprehensive tri-partite assessment. Every person completing a qualification must learn the assessment criteria. The candidate must be given an opportunity to self-assess his/her performance. The provider of a competence-based qualification must draw up minutes of the assess-

ment of the module, which must be signed by the assessors. The candidate is given feedback as part of a good assessment process. The qualification committee makes the final decision on assessment.

Assessors

The persons assessing the qualification candidate's vocational skills are to have good vocational skills themselves in the area of the competence-based qualification in question. The qualification committee and the provider of the competence-based qualification agree on the assessors in the contract for arranging competence-based qualifications.

Rectification of assessment

A person completing a qualification can, within the time limit specified by law, request rectification of assessment from the qualification committee whose sector the qualification in question falls in. A written request of rectification is addressed to the qualification committee. Having heard the assessors, the committee can oblige them to carry out a reassessment. A qualification committee decision on a claim for rectification of assessment cannot be appealed.

3.7 CERTIFICATES

Qualification committee awards a qualification certificate or a certificate on completion of a module or modules. A representative of the education provider issues a certificate on completed preparatory training respectively. "The National Board of Education has issued a regulation on the information to be included in the certificates.

A certificate on the completion of a qualification module or modules is awarded at the request of a person completing a competence-based qualification. The representatives of the qualification committee and the education provider sign the qualification certificate or a certificate given after the completion of a module or modules.

An entry in the Certificate of Vocational Skills approved by the National Board of Education in proof of completion of a competence-based qualification is comparable to a qualification certificate. The provider of the competence-based qualification acquires and signs the Certificate of Vocational Skills. A Certificate of Vocational Skills is subject to a fee.

3.8

PREPARATORY TRAINING FOR COMPETENCE-BASED QUALIFICATIONS

In the case of a competence-based qualification no preconditions to attend preparatory training can be set. However, these qualifications are primarily taken in connection with such preparatory training. The education provider decides on the contents and arrangement of preparatory training for competence-based qualifications in compliance with the qualification requirements. The training and tests must be structured according to the qualification modules to be completed. A person attending such preparatory training must be provided an opportunity to participate in competence tests and complete the qualification as part of the training.

4

VOCATIONAL MODULES, VOCATIONAL SKILLS REQUIREMENTS AND ASSESSMENT OF THE VOCATIONAL QUALIFICATION IN LAND SURVEYING

4.1 COMPULSORY MODULES FOR ALL

4.1.1 Basic surveying

Vocational skills requirements

The student or candidate will be able to

- ◆ plan his/her work, observing the quality requirements in place for the work and taking account of the whole process
- ◆ use the measuring instruments, hand tools and materials needed for survey work and ensure that the measuring equipment is in working order
- ◆ take surveying and setting out measurements
- ◆ perform calculations related to measurement tasks
- ◆ process measurement data, produce printouts and report on his/her work as the situation requires
- ◆ look for information on maps and plans and in registers
- ◆ take account of measurements when attending to basic matters relating to land use plans and real estate formation that impact on the work
- ◆ take account of the accuracy requirements in survey work, check the reliability of his/her measurements, and observe all relevant recommendations, instructions, regulations and legislation
- ◆ take account of the requirements governing occupational health, working safely and maintaining the ability to function
- ◆ interact and cooperate with members of the work community and others when carrying out various assignments
- ◆ assess his/her own work performance, solve problems and act in accordance with the ethical principles of the profession.

The student or candidate possesses the basic first aid skills and the main valid safety licences required for survey work.

After taking this module the candidate is able to function as a member of a surveying team with regard to the most common survey tasks.

Assessment

The table shows the targets of assessment and the assessment criteria for three levels of competence. In vocational upper secondary education and training, the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
1. Mastering the work process	The student or candidate		
Planning one's work	plans his/her work, under supervision	plans his/her work, following instructions issued	adapts his/her work according to the situation and circumstances
	observes working hours and follows work instructions under supervision	observes working hours and follows work instructions issued	observes working hours, follows work instructions, and negotiates any changes to these
Observation of the quality requirements for work	under supervision, works in accordance with targets and regulations	works in accordance with targets and regulations	works in accordance with targets and regulations, and develops his/her own contribution to the achievement of targets
Mastering the work in its entirety	under supervision, performs the tasks given	sees his/her contribution as part of a larger whole	carries out his/her work while observing the overall requirements
	understands the on-site procedures and can work in accordance with them, under supervision.	understands the on-site procedures and can work in accordance with them.	understands the on-site procedures and works accordingly in a way that is optimal for the type of situation and surroundings.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
2. Mastering the work methods, equipment and material	The student or candidate		
Use of measuring instruments, hand tools and materials	needs guidance in selecting tools, applying them to work situations and choosing work methods	is able to work in normal situations and learns how to use new tools	selects the tools best suited to the situation and adapts to new work situations and circumstances
	under supervision, uses and maintains equipment	uses and maintains equipment, in accordance with instructions	uses equipment effectively, solves problems with equipment independently, and maintains the equipment he/she uses
	uses materials under guidance	uses materials in accordance with instructions	uses materials carefully and economically, observing the principles of sustainable development
Carrying out surveying and setting out measurements	selects the work method and works under supervision	employs the work method that he/she selects and assesses its suitability as the work progresses	independently adapts his/her work and the work methods employed according to the circumstances
Performing calculations	performs requested calculations, under supervision	performs ordinary calculations as required for the job	looks for the source data needed for performing task-related calculations and determines the data needed for each situation
Processing field data, producing printouts and reporting on the work	under supervision, transfers field data to processing software, and produces printouts and reports, as requested.	transfers normal, job-related field data, processes it in the appropriate format and produces the necessary printouts and reports.	in accordance with the requirements of the job, transfers field data, processes it in the necessary file formats, and produces printouts and reports, as the situation requires.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
3. Underpinning knowledge	The student or candidate		
Looking for information on maps and in registers	is familiar with and observes the recommendations, instructions, regulations and legislation that apply to his/her work and acts according to instructions	is familiar with and observes the recommendations, instructions, regulations and legislation that impact on the work, and works in accordance with them	is familiar with and applies the recommendations, instructions, regulations and legislation in his/her work, as the situation requires and in varying circumstances

	under supervision, acquires the source data required for the job	acquires the source data required for the job	acquires source data and supplements it, where necessary, as required for the job
Taking account of land use plans and real estate formation impacting on the work	under supervision, takes account of basic matters relating to land use plans and real estate formation that impact on the work	takes account of basic matters relating to land use plans and real estate formation given him/her	is able to apply basic matters relating to land use plans and real estate formation for each individual assignment
Taking account of accuracy requirements and checking procedures.	takes measurements to the degree of accuracy agreed and checks measurements as requested.	ensures that accuracy requirements are met and checks measurements as required.	examines the accuracy requirements relating to the job, ensures that they are met, and solves any problems.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
4. Key competences for lifelong learning	Satisfactory 1	Good 2	Excellent 3
	The student or candidate		
Health, safety and ability to function	has a positive attitude towards safe activities and avoids risks in his/her work	assumes responsibility for the safety of his/her activities	improves the safety of his/her own actions
	abides by the safety instructions given and does not endanger him-/herself or others	abides by the work community's instructions and reports emergencies	perceives and identifies work-related risks and takes account of the other members of the work community whilst doing his/her job
	uses personal protective equipment, tools and working methods safely by following instructions	makes sure that protective equipment, tools and materials are safe, removing faulty tools and taking it away to be serviced	assesses the suitability of protective equipment, tools and working methods for the job in hand and independently ensures the occupational safety of his/her surroundings
	under supervision, considers his/her ability to function and work	is motivated to maintain a healthy lifestyle as well as the ability to function and work	is motivated to maintain and promote a healthy lifestyle as well as the ability to function and work independently

Interaction and cooperation	takes account of the actions of other groups in the work environment, following instructions	takes account of the actions of other groups in the work environment	adapts his/her work to other activities taking place in the work environment, and is able to discover the needs of other groups
	works together with team members	works constructively together with different people and as an active member of the work team	works constructively together with different people and as an active member of the work team, and encourages and supports the work team
Learning and problem solving	assesses his/her work under supervision	assesses his/her work	assesses his/her work in accordance with quality requirements
Vocational ethics	under supervision, observes the financial, social and sustainable development-related values agreed upon.	observes the financial, social and sustainable development-related values agreed upon.	observes the financial, social and sustainable development-related values in place.

Ways of demonstrating vocational skills

The student or candidate demonstrates his/her vocational skills by carrying out a surveying assignment on a genuine work site or in another place that corresponds to genuine conditions on a site as closely as possible. The work is carried out to an extent that makes it possible to establish that the vocational skills meet the requirements.

A skills demonstration to comprise at least:

- ◆ mastering the work process in its entirety
- ◆ mastering the work method, equipment and material in its entirety
- ◆ underpinning knowledge in its entirety
- ◆ key competences for lifelong learning: health, safety and ability to function and interaction and cooperation

If the vocational skills required in the module cannot be shown in a skills demonstration or a competence test, it is to be completed with such other assessment of competence as interviews, assignments and other reliable methods.

4.2 OPTIONAL MODULES FOR ALL

4.2.1 Taking measurements

Vocational skills requirements

The student or candidate will be able to

- ◆ plan his/her survey work, observing the quality requirements in place for the work and taking account of the whole process
- ◆ use the instruments and materials needed for survey work and ensure that the measuring equipment is in working order
- ◆ perform setting-out measurements and establish as-built dimensions in street construction
- ◆ mark locations on land and plot conduits and pipelines
- ◆ mark areas in diagrams and set out land use plans
- ◆ measure terrain models, produce printouts of the measurements and calculate mass
- ◆ build, measure and calculate levelling and height benchmark networks using different methods
- ◆ set out locations on building sites and carry out location inspections
- ◆ carry out field work for aerial photography
- ◆ process measurement data, produce printouts and report on his/her work
- ◆ observing the regulations, look for the information he/she needs in plans and diagrams the survey work is based on and process it in the correct format
- ◆ take account of the accuracy requirements in survey work, check the reliability of his/her measurements, and observe all relevant recommendations, instructions, regulations and legislation
- ◆ take account of the requirements governing occupational health, working safely and maintaining the ability to function
- ◆ interact and cooperate with members of the work community and others when carrying out various assignments
- ◆ assess his/her own work performance, solve problems and act in accordance with the ethical principles of the profession.

Those gaining the qualification are able to function as leader of a surveying team with regard to the most common survey tasks.

Assessment

The table shows the targets of assessment and the assessment criteria for three levels of competence. In vocational upper secondary education and training, the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
1. Mastering the work process	The student or candidate		
Planning one's work	plans his/her work, under supervision	plans his/her work, following instructions issued	adapts his/her work according to the situation and circumstances
	observes working hours and follows work instructions under supervision	observes working hours and follows work instructions issued	observes working hours, follows work instructions, and negotiates any changes to these
Observation of the quality requirements for work	under supervision, works in accordance with targets and regulations	works in accordance with targets and regulations	works in accordance with targets and regulations, and develops his/her own contribution to the achievement of targets
Mastering the work in its entirety	under supervision, performs the tasks given	sees his/her contribution as part of a larger whole	carries out his/her work while observing the overall requirements
	understands the on-site procedures and can work in accordance with them, under supervision.	understands the on-site procedures and can work in accordance with them.	understands the on-site procedures and works accordingly in a way that is optimal for the type of situation and surroundings.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
2. Mastering the work methods, equipment and material	The student or candidate		
Use of measuring instruments, hand tools and materials	needs guidance in selecting tools, applying them to work situations and choosing work methods	is able to work in normal situations and learns how to use new equipment	selects the tools best suited to the situation and adapts to new work situations and circumstances
	under supervision, uses and maintains equipment	uses and maintains equipment, in accordance with instructions	uses equipment effectively, solves problems with equipment independently, and maintains the equipment he/she uses

	uses materials under guidance	uses materials in accordance with instructions	uses materials carefully and economically, observing the principles of sustainable development
Carrying out surveying and setting out measurements	sets out measurements as requested and under supervision	sets out normal measurements in accordance with the requirements of the job	sets out measurements using methods with reference to the requirements of the work site, in varying circumstances
	makes benchmarks in the field, as requested	makes benchmarks in the field in accordance with the survey work objective	makes benchmarks in the field as agreed according to the situation and as dictated by work site conditions
Processing measurement data, producing printouts and reporting on the work	under supervision, processes measurement data in the required format, and produces printouts and reports, as requested	processes normal, job-related measurement data in the appropriate format and produces the required printouts and reports	processes measurement data as required for the job in the appropriate file formats, and produces printouts and reports according to the situation
	performs requested calculations, under supervision.	performs ordinary calculations as required for the job.	looks for the source data needed for performing task-related calculations and determines the data needed for each situation.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
3. Underpinning knowledge	Satisfactory 1	Good 2	Excellent 3
	The student or candidate		
Looking for information in plans and diagrams and processing it in the correct format	is familiar with and observes the recommendations, instructions, regulations and legislation that apply to his/her work and acts according to instructions	is familiar with and observes the recommendations, instructions, regulations and legislation that impact on the work, and works in accordance with them	is familiar with and applies the recommendations, instructions, regulations and legislation in his/her work, as the situation requires and in varying circumstances
	under supervision, acquires the source data required for the job	acquires the source data required for the job and processes it in the required format	acquires the source data required for the job, supplements it, where necessary and as required, and makes any necessary format conversions
	under supervision, interprets the markings on land use plans	is familiar with the markings on land use plans, and is able to read plans with reference to surveying needs	is familiar with the markings on land use plans, identifies errors in plans and explores ways to correct them

Taking account of accuracy requirements and checking procedures	takes measurements to the degree of accuracy agreed and checks measurements as requested.	ensures that accuracy requirements are met and checks measurements as required.	examines the accuracy requirements relating to the job, ensures that they are met, and solves any problems.
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TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
4. Key competences for lifelong learning	Satisfactory 1	Good 2	Excellent 3
Health, safety and ability to function	The student or candidate		
	has a positive attitude towards safe activities and avoids risks in his/her work	assumes responsibility for the safety of his/her activities	improves the safety of his/her own actions
	abides by the safety instructions given and does not endanger him-/herself or others	abides by the work community's instructions and reports emergencies	perceives and identifies work-related risks and takes account of the other members of the work community whilst doing his/her job
	uses personal protective equipment, tools and working methods safely by following instructions	makes sure that protective equipment, tools and materials are safe, removing faulty tools and taking it away to be serviced	assesses the suitability of protective equipment, tools and working methods for the job in hand and independently ensures the occupational safety of his/her surroundings
	under supervision, considers his/her ability to function and work	is motivated to maintain a healthy lifestyle as well as the ability to function and work	is motivated to maintain and promote a healthy lifestyle as well as the ability to function and work independently
Interaction and cooperation	takes account of the actions of other groups in the work environment, following instructions	takes account of the actions of other groups in the work environment	adapts his/her work to other activities taking place in the work environment, and is able to discover the needs of other groups
	works together with team members	works constructively together with different people and as an active member of the work team	works constructively together with different people and as an active member of the work team, and encourages and supports the work team
Learning and problem solving	assesses his/her work under supervision	assesses his/her work	assesses his/her work in accordance with quality requirements
Vocational ethics	under supervision, observes the financial, social and sustainable development-related values agreed upon.	observes the financial, social and sustainable development-related values agreed upon.	observes the financial, social and sustainable development-related values in place.

Ways of demonstrating vocational skills

Student/candidate demonstrates his/her vocational skills by carrying out survey work in the field and based on a plan, and by making the benchmarks required on a work site, or by processing the measurement data resulting from survey work, as required to achieve the objectives of the work, to be able to produce the necessary printouts. The work is carried out on a genuine work site or in another place that corresponds to genuine conditions on a site as closely as possible. The work is carried out to an extent that makes it possible to establish that the vocational skills meet the requirements.

A skills demonstration to comprise at least:

- ◆ mastering the work process in its entirety
- ◆ mastering the work method, equipment and material in its entirety
- ◆ underpinning knowledge in its entirety
- ◆ key competences for lifelong learning: health, safety and ability to function and interaction and cooperation.

If the vocational skills required in the module cannot be shown in a skills demonstration or a competence test, it is to be completed with such other assessment of competence as interviews, assignments and other reliable methods.

4.2.2 Cartographical and geographical information

Vocational skills requirements

The student or candidate will be able to

- ◆ plan his/her work, observing the quality requirements in place for the work and taking account of the whole process
- ◆ produce, process and maintain cartographical and GIS data
- ◆ use the various types of computer program required for the work: mapping, GIS, CAD, field measurement, stereo mapping, laser scanning and imaging software, and necessary peripherals
- ◆ produce printouts, convert data to different formats and report on his/her work
- ◆ collect geographical information from the field and carry out data transfer as required for the job
- ◆ create thematic maps

- ♦ take account of the recommendations, instructions, regulations and legislation in place for creating cartographical and geographical information products and observe the accuracy requirements in effect
- ♦ look for information on maps and charts and in cartographical and GIS data and use it as an aid in his/her work
- ♦ take account of the requirements governing occupational health, working safely and maintaining the ability to function
- ♦ interact and cooperate with members of the work community and others when carrying out various assignments
- ♦ assess his/her own work performance, solve problems and act in accordance with the ethical principles of the profession.

Assessment

The table shows the targets of assessment and the assessment criteria for three levels of competence. In vocational upper secondary education and training, the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
1. Mastering the work process	The student or candidate		
Planning one's work	plans his/her work, under supervision	plans his/her work, following instructions issued	adapts his/her work according to the situation and circumstances
	observes working hours and follows work instructions under supervision	observes working hours and follows the work instructions issued	observes working hours, follows work instructions, and negotiates any changes to these
Observation of the quality requirements for work	under supervision, works in accordance with targets and regulations	works in accordance with targets and regulations	works in accordance with targets and regulations, and develops his/her own contribution to the achievement of targets
Mastering the work in its entirety	under supervision, performs the tasks given	sees his/her contribution as part of a larger whole	carries out his/her work while observing the overall requirements
	understands the on-site procedures and can work in accordance with them, under supervision.	understands the on-site procedures and can work in accordance with them.	understands the on-site procedures and works accordingly in a way that is optimal for the type of situation and surroundings.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
2. Mastering the work methods, equipment and material	The student or candidate		
Producing, processing and maintaining cartographical and GIS data	under supervision, carries out tasks relating to data, as requested	carries out normal tasks relating to data, in accordance with the work requirements	processes data, in accordance with the work requirements, and independently solves problems
Use of software and equipment	needs guidance in the use of software and equipment	uses different software and equipment in normal situations at work	uses different software and equipment effectively, and independently solves problems
Producing printouts, data format conversions and reporting on his/her work	under supervision, produces printouts, makes format conversions and drafts reports, as requested	produces printouts, makes format conversions and drafts reports, as normally required for the work	produces printouts, makes format conversions and drafts reports, in accordance with the work requirements
Collection of GIS data from the field and carrying out data transfer	under supervision, collects GIS data from the field and carries out data transfer	collects GIS data from the field, in accordance with requirements, and carries out data transfer, as necessary	collects GIS data from the field, observing the accuracy and quality requirements in place, and carries out data transfer, as necessary
Creating thematic maps	creates simple thematic maps, occasionally needing guidance.	creates thematic maps independently.	creates thematic maps independently, combining different various source data and source data in different formats.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
3. Underpinning knowledge	The student or candidate		
Familiarity with quality requirements and instructions	is familiar with and observes the recommendations, instructions, regulations and legislation that apply to his/her work and acts according to instructions	is familiar with and observes the recommendations, instructions, regulations and legislation that impact on the work: for example, the instructions for cartographical data for the most common official assignments	is familiar with and applies the recommendations, instructions, regulations and legislation that impact on the work: for example, the instructions for cartographical data for the most common official assignments, and solves problems

Familiarity with maps and cartographical and GIS data	under supervision, looks for information on the most common types of map and in the most common types of cartographical and GIS data.	knows and identifies the most common types of map and cartographical and GIS information, and looks for information on/in them.	knows and identifies the most common types of map and cartographical and GIS information, and looks for information on/in them, and is familiar with the methods for producing maps and data.
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TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
4. Key competences for lifelong learning	The student or candidate		
Health, safety and ability to function	has a positive attitude towards safe activities and avoids risks in his/her work	assumes responsibility for the safety of his/her activities	improves the safety of his/her own actions
	abides by the safety instructions given and does not endanger him-/herself or others	abides by the work community's instructions and reports emergencies	perceives and identifies work-related risks and takes account of the other members of the work community whilst doing his/her job
	uses personal protective equipment, tools and working methods safely by following instructions	makes sure that protective equipment, tools and materials are safe, removing faulty tools and taking it away to be serviced	assesses the suitability of protective equipment, tools and working methods for the job in hand and independently ensures the occupational safety of his/her surroundings
	under supervision, considers his/her ability to function and work	is motivated to maintain a healthy lifestyle as well as the ability to function and work	is motivated to maintain and promote a healthy lifestyle as well as the ability to function and work independently
Interaction and cooperation	takes account of the actions of other groups in the work environment, following instructions	takes account of the actions of other groups in the work environment	adapts his/her work to other activities taking place in the work environment, and is able to discover the needs of other groups
	works together with team members	works constructively together with different people and as an active member of the work team	works constructively together with different people and as an active member of the work team, and encourages and supports the work team
Learning and problem solving	assesses his/her work under supervision	assesses his/her work	assesses his/her work in accordance with quality requirements

Vocational ethics	under supervision, observes the financial, social and sustainable development-related values agreed upon.	observes the financial, social and sustainable development-related values agreed upon.	observes the financial, social and sustainable development-related values in place.
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Ways of demonstrating vocational skills

Student/candidate demonstrates his/her vocational skills by performing cartographical and GIS tasks in an authentic work situation or in another place that corresponds to genuine working conditions as closely as possible. The work is carried out to an extent that makes it possible to establish that the vocational skills meet the requirements.

A skills demonstration to comprise at least:

- ◆ mastering the work process in its entirety
- ◆ mastering the work method, equipment and material: producing, processing and maintaining cartographical and GIS data, use of software and equipment
- ◆ underpinning knowledge in its entirety
- ◆ key competences for lifelong learning: health, safety and ability to function and interaction and cooperation

If the vocational skills required in the module cannot be shown in a skills demonstration or a competence test, it is to be completed with such other assessment of competence as interviews, assignments and other reliable methods.

4.2.3 Basic cadastral surveying

Vocational skills requirements

The student or candidate will be able to

- ◆ plan his/her work, observing the quality requirements in place for the work and taking account of the whole process
- ◆ use the measuring instruments, hand tools and materials needed for survey work and ensure that the measuring equipment is in working order
- ◆ identify and establish boundary markers and boundary points
- ◆ interpret the content of a deed as regards a parcel of real estate

- ◆ process measurement data in the required format and produce printouts, maps and reports for the basic cadastral surveys
- ◆ explain the structure of the Finnish cadastral system when providing customer services
- ◆ examine records relating to basic cadastral surveys (parcellings, property definitions)
- ◆ take account of the law governing basic cadastral surveys, where applicable
- ◆ take account of the land use plans and real estate formation that impact on the work when taking measurements
- ◆ take account of the accuracy requirements in survey work, check the reliability of his/her measurements, and observe all relevant recommendations, instructions, regulations and legislation
- ◆ take account of the requirements governing occupational health, working safely and maintaining the ability to function
- ◆ interact and cooperate with members of the work community and others when carrying out various assignments
- ◆ assess his/her own work performance, solve problems and act in accordance with the ethical principles of the profession.

Assessment

The table shows the targets of assessment and the assessment criteria for three levels of competence. In vocational upper secondary education and training, the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
1. Mastering the work process	The student or candidate		
Planning one's work	plans his/her work, under supervision	plans his/her work, following instructions issued	adapts his/her work according to the situation and circumstances
	observes working hours and follows work instructions under supervision	observes working hours and follows work instructions issued	observes working hours, follows work instructions, and negotiates any changes to these
Observation of the quality requirements	under supervision, works in accordance with targets and regulations	works in accordance with targets and regulations	works in accordance with targets and regulations, and develops his/her own contribution to the achievement of targets

Mastering the work in its entirety	under supervision, performs the tasks given	sees his/her contribution as part of a larger whole	carries out his/her work while observing the overall requirements
	understands the on-site procedures and can work in accordance with them, under supervision.	understands the on-site procedures and can work in accordance with them.	understands the on-site procedures and works accordingly in a way that is optimal for the type of situation and surroundings.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
2. Mastering the work methods, equipment and material	Satisfactory 1	Good 2	Excellent 3
	The student or candidate		
Use of measuring instruments, hand tools and materials	needs guidance in selecting tools, applying them to work situations and choosing work methods	learns how to use new equipment, and is able to work in normal work situations	selects the tools best suited to the situation and adapts to new work situations and circumstances
	under supervision, uses and maintains equipment	uses and maintains equipment, in accordance with instructions	uses equipment effectively, solves problems with equipment independently, and maintains the equipment he/she uses
	uses materials under guidance	uses materials in accordance with instructions	uses materials carefully and economically, observing the principles of sustainable development
Identifying and establishing boundary markers	needs guidance in identifying boundary markers in the field and, under supervision, is able to establish new boundary markers	identifies the boundary markers used in cadastral surveys, and is familiar with the regulations pertaining to their use	identifies different types of boundary marker, is familiar with the regulations pertaining to their use, and is able to establish new markers independently
Interpreting a deed and determining a parcel of real estate in the field	needs help in interpreting a deed	carries out basic cadastral surveys in the field, following instructions	is able to interpret the content of a deed independently, and stakes out land with reference to it
Processing measurement data, producing printouts and reporting on the work	under supervision, transfers measurement data to processing software, and produces printouts and reports, as requested.	transfers job-related measurement data, processes it in the appropriate format and produces reports, as required.	in accordance with the requirements of the job, transfers measurement data, processes it in the necessary file formats and produces printouts and reports, as the situation requires.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
3. Underpinning knowledge	The student or candidate		
Familiarisation with the Finnish cadastral system	under guidance, is able to explain the structure of the Finnish cadastral system	is able to explain the basic structure of the Finnish cadastral system	is able independently to explain the structure of the Finnish cadastral system to an outsider
Examining records	needs guidance when examining records in basic cadastral surveys	examines records in basic cadastral surveys	is able independently to conduct preparatory examinations of records relating to parcellings and the demarcation of boundaries
Looking for information on maps and in registers	is familiar with and observes the recommendations, instructions and regulations that apply to his/her work and acts according to instructions	is familiar with and observes the recommendations, instructions and regulations that impact on the work	is familiar with and applies the recommendations, instructions and regulations in his/her work, as the situation requires and in varying circumstances
	under supervision, acquires the source data required for the job	acquires the source data required for the job	acquires source data and supplements it, where necessary and as required for the job
Familiarisation with the law	under guidance, is able to apply the regulations pertaining to basic cadastral surveys	is generally familiar with the regulations pertaining to basic cadastral surveys	is able to apply the provisions in Finnish Acts and Decrees pertaining to basic cadastral surveys
Taking account of the land use plans and real estate formation that impact on taking measurements	under supervision, takes account of the land use plans and real estate formation that impact on the work	takes account of the land use plans and real estate formation in his/her work	takes account of the land use plans and real estate formation in his/her work and is able to apply them in each specific assignment
Taking account of accuracy requirements and checking procedures.	takes measurements to the degree of accuracy agreed and checks measurements as requested.	ensures that accuracy requirements are met and checks measurements as required.	examines the accuracy requirements relating to the job, ensures that they are met, and solves any problems.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
4. Key competences for lifelong learning	Satisfactory 1	Good 2	Excellent 3
	The student or candidate		
Health, safety and ability to function	has a positive attitude towards safe activities and avoids risks in his/her work	assumes responsibility for the safety of his/her activities	improves the safety of his/her own actions
	abides by the safety instructions given and does not endanger him-/herself or others	abides by the work community's instructions and reports emergencies	perceives and identifies work-related risks and takes account of the other members of the work community whilst doing his/her job
	uses personal protective equipment, tools and working methods safely according to instructions	makes sure that protective equipment, tools and materials are safe, removing faulty tools and taking it away to be serviced	assesses the suitability of protective equipment, tools and working methods for the job in hand and independently ensures the occupational safety of his/her surroundings
	under supervision, considers his/her ability to function and work	is motivated to maintain a healthy lifestyle as well as the ability to function and work	is motivated to maintain and promote a healthy lifestyle as well as the ability to function and work independently
Interaction and cooperation	takes account of the actions of other groups in the work environment, following instructions	takes account of the actions of other groups in the work environment	adapts his/her work to other activities taking place in the work environment, and is able to discover the needs of other groups
	works together with team members	works constructively together with different people and as an active member of the work team	works constructively together with different people and as an active member of the work team, and encourages and supports the work team
Learning and problem solving	assesses his/her work under supervision	assesses his/her work	assesses his/her work in accordance with quality requirements
Vocational ethics	under supervision, observes the financial, social and sustainable development-related values agreed upon.	observes the financial, social and sustainable development-related values agreed upon.	observes the financial, social and sustainable development-related values in place.

Ways of demonstrating vocational skills

Student/candidate demonstrates his/her vocational skills by staking out land in the field or examining records in connection with parcelling. The work is carried out in an authentic work situation or in another place that corresponds to genuine working conditions as closely as possible. The work is carried out to an extent that makes it possible to establish that the vocational skills meet the requirements.

A skills demonstration to comprise at least:

- ◆ mastering the work process in its entirety
- ◆ mastering the work method, equipment and material in its entirety
- ◆ underpinning knowledge in its entirety
- ◆ key competences for lifelong learning: health, safety and ability to function and interaction and cooperation

If the vocational skills required in the module cannot be shown in a skills demonstration or a competence test, it is to be completed with such other assessment of competence as interviews, assignments and other reliable methods.

4.2.4 Land use planning

Vocational skills requirements

The student or candidate will be able to

- ◆ plan his/her work, observing the quality requirements in place for the work and taking account of the whole process
- ◆ use the planning, GIS and special programs required for the assignments concerned
- ◆ use the data registers and source data needed for drawing up land use plans and diagrams
- ◆ observing the regulations, compile data for planning and land allocation, and process it in the required format
- ◆ draw land use plans, diagrams, site layout plans and situation plans, and produce illustrations, printouts and documents

- ♦ in customer service situations, explain the planning system and land use plans and the instructions, regulations, markings, laws and imaging techniques that relate to producing these
- ♦ take account of the accuracy requirements in survey work, check the reliability of his/her measurements, and observe all relevant recommendations, instructions, regulations and legislation
- ♦ take account of the requirements governing occupational health, working safely and maintaining the ability to function
- ♦ interact and cooperate with members of the work community and others when carrying out various assignments
- ♦ assess his/her own work performance, solve problems and act in accordance with the ethical principles of the profession.

Those gaining the qualification are qualified to assist in drawing up plans and make use of plans in the role of surveyor. The tasks involved call in particular for an ability to use planning and presentation software, interactive skills, and familiarity with the instructions, regulations and requirements governing the production and content of plans.

Assessment

The table shows the targets of assessment and the assessment criteria for three levels of competence. In vocational upper secondary education and training, the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
1. Mastering the work process	The student or candidate		
Planning one's work	plans his/her work, under supervision	plans his/her work, following instructions issued	adapts his/her work according to the situation and circumstances
	observes working hours and follows work instructions under supervision	observes working hours and follows work instructions issued	observes working hours, follows work instructions, and negotiates any changes to these
Observation of the quality requirements for work	under supervision, works in accordance with targets and regulations	works in accordance with targets and regulations	works in accordance with targets and regulations, and develops his/her own contribution to the achievement of targets

Mastering the work in its entirety	under supervision, performs the tasks given	sees his/her contribution as part of a larger whole	carries out his/her work while observing the overall requirements
	understands the on-site procedures and can work in accordance with them, under supervision.	understands the on-site procedures and can work in accordance with them.	understands the on-site procedures and works accordingly in a way that is optimal for the type of situation and surroundings.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
2. Mastering the work methods, equipment and material	Satisfactory 1	Good 2	Excellent 3
	The student or candidate		
Use of planning, GIS and presentation programs	needs guidance in the use of software and equipment	uses different software and equipment in normal work situations	uses the software and equipment most suited to needs, and adapts to new work situations and circumstances
Use of data registers and source data	under supervision, uses registers and source data, as advised	uses registers and source data as required for the job in normal work situations	uses registers and source data as required for the job and supplements it, where necessary
Compiling planning data and processing it in the correct format	needs guidance in acquiring and processing data	is able to compile data normally required for planning and presenting plans, and processes it in the required format	selects the data, data format, compilation methods and tools best suited to the situation
Drawing land use plans, diagrams, site layout plans and situation plans, and producing illustrations, printouts and documents	produces drawings, printouts and documents, as requested	produces normal, job-related drawings, printouts and documents	produces drawings in accordance with requirements and printouts and documents according to the situation, in the correct file formats
Providing customer services	knows how to provide customer services, under supervision.	provides a customer service, managing normal situations successfully.	provides a service-minded customer service and solves customers' problems.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
3. Underpinning knowledge	Satisfactory 1	Good 2	Excellent 3
	The student or candidate		
Familiarisation with the planning system and land use plans	is familiar with diagrams and land use plans, and the methods used to produce them, but needs assistance	is familiar with the most common diagrams and land use plans, and knows the methods used to produce them	is familiar with diagrams and land use plans, and the methods for producing them

Familiarisation with the instructions, regulations, markings, statutes and imaging techniques that relate to drawing up plans and producing diagrams	is familiar with and observes the recommendations, instructions, regulations and legislation that apply to his/her work and acts according to instructions	is familiar with and observes the recommendations, instructions, regulations and legislation that impact on the work	is familiar with and observes the recommendations, instructions, regulations and legislation in his/her work, and solves problems
	uses the markings on land use plans and diagrams, as advised	is familiar with and uses the markings on land use plans and diagrams, as required	is familiar with and uses the markings on land use plans and diagrams according to the job in hand, identifies errors in plans and explores ways to correct them
Taking account of accuracy requirements and checking procedures	takes measurements to the degree of accuracy agreed and checks measurements as requested.	ensures that accuracy requirements are met and checks measurements as required.	examines the accuracy requirements relating to the job, ensures that they are met, and solves any problems.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
4. Key competences for lifelong learning	Satisfactory 1	Good 2	Excellent 3
	The student or candidate		
Health, safety and ability to function	has a positive attitude towards safe activities and avoids risks in his/her work	assumes responsibility for the safety of his/her activities	improves the safety of his/her own actions
	abides by the safety instructions given and does not endanger him-/herself or others	abides by the work community's instructions and reports emergencies	perceives and identifies work-related risks and takes account of the other members of the work community whilst doing his/her job
	uses personal protective equipment, tools and working methods safely by following instructions	makes sure that protective equipment, tools and materials are safe, removing faulty tools and taking it away to be serviced	assesses the suitability of protective equipment, tools and working methods for the job in hand and independently ensures the occupational safety of his/her surroundings
	under supervision, considers his/her ability to function and work	is motivated to maintain a healthy lifestyle as well as the ability to function and work	is motivated to maintain and promote a healthy lifestyle as well as the ability to function and work independently

Interaction and cooperation	takes account of the actions of other groups in the work environment, following instructions	takes account of the actions of other groups in the work environment	adapts his/her work to other activities taking place in the work environment, and is able to discover the needs of other groups
	works together with team members	works constructively together with different people and as an active member of the work team	works constructively together with different people and as an active member of the work team, and encourages and supports the work team
Learning and problem solving	assesses his/her work under supervision	assesses his/her work	assesses his/her work in accordance with quality requirements
Vocational ethics	under supervision, observes the financial, social and sustainable development-related values agreed upon.	observes the financial, social and sustainable development-related values agreed upon.	observes the financial, social and sustainable development-related values in place.

Ways of demonstrating vocational skills

Student/candidate demonstrates his/her vocational skills by drafting land use plans or by producing diagrams, or by drafting a related plan document on the basis of source data given in an authentic work situation or in another place that corresponds to genuine working conditions as closely as possible. The work is carried out to an extent that makes it possible to establish that the vocational skills meet the requirements.

A skills demonstration to comprise at least:

- ◆ mastering the work process in its entirety
- ◆ mastering the work method, equipment and material: use of planning, GIS and presentation programs, use of data registers and source data, and compiling planning data and processing it in the correct format
- ◆ underpinning knowledge in its entirety
- ◆ key competences for lifelong learning: health, safety and ability to function and interaction and cooperation

If the vocational skills required in the module cannot be shown in a skills demonstration or a competence test, it is to be completed with such other assessment of competence as interviews, assignments and other reliable methods.

4.2.5 Soil and environmental research

Vocational skills requirements

The student or candidate will be able to

- ◆ plan his/her work, observing the quality requirements in place for the work and taking account of the whole process
- ◆ conduct soil surveys, take measurements and produce printouts
- ◆ determine soil types and their properties based on the most common laboratory investigations
- ◆ collect water, noise or other environmental samples and measure or determine the location of sites where samples can be taken, and send samples on for analysis
- ◆ look for information in data and registers and use it as an aid in his/her work
- ◆ take account of the recommendations, instructions, regulations and legislation on conducting soil and environmental research, and observe accuracy requirements
- ◆ take account of the requirements governing occupational health, working safely and maintaining the ability to function
- ◆ interact and cooperate with members of the work community and others when carrying out various assignments
- ◆ assess his/her own work performance, solve problems and act in accordance with the ethical principles of the profession.

Assessment

The table shows the targets of assessment and the assessment criteria for three levels of competence. In vocational upper secondary education and training, the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
1. Mastering the work process	The student or candidate		
Planning one's work	plans his/her work, under supervision	plans his/her work, following instructions issued	adapts his/her work according to the situation and circumstances
	observes working hours and follows work instructions under supervision	observes working hours and follows work instructions issued	observes working hours, follows work instructions, and negotiates any changes to these
Observation of the quality requirements for work	under supervision, works in accordance with targets and regulations	works in accordance with targets and regulations	works in accordance with targets and regulations, and develops his/her own contribution to the achievement of targets
Mastering the work in its entirety	under supervision, performs the tasks given	sees his/her contribution as part of a larger whole	carries out his/her work while observing the overall requirements
	understands the on-site procedures and can work in accordance with them, under supervision.	understands the on-site procedures and can work in accordance with them.	understands the on-site procedures and works accordingly in a way that is optimal for the type of situation and surroundings.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
2. Mastering the work methods, equipment and material	The student or candidate		
Conducting soil surveys, taking measurements and producing printouts	under supervision, conducts soil surveys in the field and produces printouts	conducts normal soil surveys in the field and produces printouts in accordance with the requirements of the job	conducts soil surveys in the field and produces printouts in accordance with requirements, and solves problems independently
	needs guidance in the use of equipment and software	uses different equipment and software in normal work situations	uses different equipment and software effectively and independently solves problems
Determining soil types and their properties	conducts laboratory investigations, under supervision	conducts laboratory investigations and determines soil types and their properties	conducts laboratory investigations independently, and determines soil types and their properties

Collecting water, noise or other environmental samples and measuring the location of sites where samples can be taken	under supervision, collects samples required for the job and measures the location of sites where samples can be taken.	collects samples required for the job, measures the location of sites where samples can be taken, and sends the data on.	collects samples as required for the job, measures the location of sites where samples can be taken, independently solves problems, and sends the data on in accordance with the requirements of the job.
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TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
3. Underpinning knowledge	Satisfactory 1	Good 2	Excellent 3
	The student or candidate		
Looking for information in data and registers and using it as an aid in the work	is familiar with the various registers and data used in the work, and looks for information in them, under supervision	is familiar with the various registers and data used in the work, and looks for the data required for the job in them	acquires the data needed for the job, supplements it where necessary and as required for the job, and processes the data in the required format
Taking account of instructions and the requirements governing accuracy	is familiar with and observes the recommendations, instructions, regulations and legislation that apply to his/her work and acts according to instructions.	is familiar with and observes the recommendations, instructions, regulations and legislation that impact on the work.	is familiar with and applies the recommendations, instructions, regulations and legislation that impact on the work, and solves problems.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
4. Key competences for lifelong learning	Satisfactory 1	Good 2	Excellent 3
	The student or candidate		
Health, safety and ability to function	has a positive attitude towards safe activities and avoids risks in his/her work	assumes responsibility for the safety of his/her activities	improves the safety of his/her own actions
	abides by the safety instructions given and does not endanger him-/herself or others	abides by the work community's instructions and reports emergencies	perceives and identifies work-related risks and takes account of the other members of the work community whilst doing his/her job
	uses personal protective equipment, tools and working methods safely by following instructions	makes sure that protective equipment, tools and materials are safe, removing faulty tools and taking it away to be serviced	assesses the suitability of protective equipment, tools and working methods for the job in hand and independently ensures the occupational safety of his/her surroundings

	under supervision, considers his/her ability to function and work	is motivated to maintain a healthy lifestyle as well as the ability to function and work	is motivated to maintain and promote a healthy lifestyle as well as the ability to function and work independently
Interaction and cooperation	takes account of the actions of other groups in the work environment, following instructions	takes account of the actions of other groups in the work environment	adapts his/her work to other activities taking place in the work environment, and is able to discover the needs of other groups
	works together with team members	works constructively together with different people and as an active member of the work team	works constructively together with different people and as an active member of the work team, and encourages and supports the work team
Learning and problem solving	assesses his/her work under supervision	assesses his/her work	assesses his/her work in accordance with quality requirements
Vocational ethics	under supervision, observes the financial, social and sustainable development-related values agreed upon.	observes the financial, social and sustainable development-related values agreed upon.	observes the financial, social and sustainable development-related values in place.

Ways of demonstrating vocational skills

Student/candidate demonstrates his/her vocational skills by conducting soil or environmental research in an authentic work situation or in another place that corresponds to genuine working conditions as closely as possible. The work is carried out to an extent that makes it possible to establish that the vocational skills meet the requirements.

A skills demonstration to comprise at least:

- ◆ mastering the work process in its entirety
- ◆ mastering the work method, equipment and material: conducting soil surveys, taking measurements and producing printouts, or determining soil types and their properties, or collecting water, noise or other environmental samples and measuring the location of sites where samples can be taken
- ◆ underpinning knowledge in its entirety
- ◆ key competences for lifelong learning: health, safety and ability to function and interaction and cooperation

If the vocational skills required in the module cannot be shown in a skills demonstration or a competence test, it is to be completed with such other assessment of competence as interviews, assignments and other reliable methods.

4.2.6 Special cadastral surveying

Vocational skills requirements

The student or candidate will be able to

- ◆ plan his/her work, observing the quality requirements in place for the work and taking account of the whole process
- ◆ use the measuring instruments, hand tools and materials needed for survey work and ensure that the measuring equipment is in working order
- ◆ identify and establish boundary markers and boundary points
- ◆ move markers in road surveys
- ◆ make road unit estimations for private roads
- ◆ process measurement data in the required format and produce printouts, maps and reports for the cadastral surveys
- ◆ explain the structure of the Finnish cadastral system when providing customer services
- ◆ study records relating to special cadastral surveying (partitioning, land exchange, road surveys, expropriation procedures, land organisation), where applicable under the laws on special cadastral surveying
- ◆ take account of the land use plans and real estate formation that impact on the work when taking measurements
- ◆ take account of the accuracy requirements in survey work, check the reliability of his/her measurements, and observe all relevant recommendations, instructions, regulations and legislation
- ◆ assist in drawing up inventories in connection with assessment and valuations
- ◆ take account of the requirements governing occupational health, working safely and maintaining the ability to function
- ◆ interact and cooperate with members of the work community and others when carrying out various assignments
- ◆ assess his/her own work performance, solve problems and act in accordance with the ethical principles of the profession.

Assessment

The table shows the targets of assessment and the assessment criteria for three levels of competence. In vocational upper secondary education and training, the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
1. Mastering the work process	The student or candidate		
Planning one's work	plans his/her work, under supervision	plans his/her work, following instructions issued	adapts his/her work according to the situation and circumstances
	observes working hours and follows work instructions under supervision	observes working hours and follows work instructions issued	observes working hours, follows work instructions, and negotiates any changes to these
Observation of the quality requirements for work	under supervision, works in accordance with targets and regulations	works in accordance with targets and regulations	works in accordance with targets and regulations, and develops his/her own contribution to the achievement of targets
Mastering the work in its entirety	under supervision, performs the tasks given	sees his/her contribution as part of a larger whole	carries out his/her work while observing the overall requirements
	understands the on-site procedures and can work in accordance with them, under supervision.	understands the on-site procedures and can work in accordance with them.	understands the on-site procedures and works accordingly in a way that is optimal for the type of situation and surroundings.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
2. Mastering the work methods, equipment and material	The student or candidate		
Use of measuring instruments, hand tools and materials	needs guidance in selecting tools, applying them to work situations and choosing work methods	learns how to use new tools and is able to work in normal situations	selects the tools best suited to the situation and adapts to new work situations and circumstances
	under supervision, uses and maintains equipment	uses and maintains equipment, in accordance with instructions	uses equipment effectively, solves problems with equipment independently, and maintains the equipment he/she uses

	uses materials under guidance	uses materials in accordance with instructions	uses materials carefully and economically, observing the principles of sustainable development
Identifying and establishing boundary markers	needs guidance in identifying boundary markers in the field and, under supervision, is able to establish new boundary markers	identifies the boundary markers used in cadastral surveys, and is familiar with the regulations pertaining to their use	identifies different types of boundary marker, is familiar with the regulations pertaining to their use, and is able to establish new markers independently
Moving boundary markers	needs help moving boundary markers	carries out work in the field in connection with special cadastral surveying, following instructions	is able to move boundary markers independently
Making road unit estimations for private roads	needs help drafting road unit estimations	makes road unit estimations in normal situations	is able to draft road unit estimations independently
Processing measurement data, producing printouts and maps, and reporting on the work	under supervision, transfers measurement data to processing software, and produces printouts, maps and reports, as requested.	transfers job-related measurement data and produces the required maps and reports.	in accordance with the requirements of the job, transfers measurement data, processes it in the necessary file formats and produces printouts, maps and reports, as the situation requires.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
3. Underpinning knowledge	Satisfactory 1	Good 2	Excellent 3
	The student or candidate		
Familiarisation with the Finnish cadastral system	under guidance, is able to explain the structure of the Finnish cadastral system	is able to explain the structure of the Finnish cadastral system	is able independently to explain the structure of the Finnish cadastral system in customer service situations
Examining records	needs guidance when examining records in assessments and special cadastral surveying	examines records in special cadastral surveying	is able independently to conduct preparatory examinations of records relating to special cadastral surveying
Looking for information on maps and in registers	is familiar with and observes the recommendations, instructions and regulations that apply to his/her work and acts according to instructions	is familiar with and observes the recommendations, instructions and regulations that impact on the work	is familiar with and applies the recommendations, instructions and regulations in his/her work, as the situation requires and in varying circumstances
	under supervision, acquires the source data required for the job	acquires the source data required for the job	acquires source data and supplements it, where necessary and as required for the job

Familiarisation with the law	under guidance, is able to apply the regulations pertaining to special cadastral surveying	is generally familiar with the regulations pertaining to special cadastral surveying	is able to apply the provisions in Finnish Acts and Decrees pertaining to special cadastral surveying
Taking account of the land use plans and real estate formation that impact on taking measurements	under supervision, takes account of the land use plans and real estate formation that impact on the work	takes account of the land use plans and real estate formation in his/her work	takes account of the land use plans and real estate formation in his/her work and is able to apply them in each specific assignment
Taking account of accuracy requirements and checking procedures	takes measurements to the degree of accuracy agreed and checks measurements as requested	ensures that accuracy requirements are met and checks measurements as required	examines the accuracy requirements relating to the job, ensures that they are met, and solves any problems
Drawing up provisional inventories	under supervision, draws up inventories, as indicated.	draws up inventories, as requested.	draws up provisional inventories.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
4. Key competences for lifelong learning	Satisfactory 1	Good 2	Excellent 3
Health, safety and ability to function	The student or candidate		
	has a positive attitude towards safe activities and avoids risks in his/her work	assumes responsibility for the safety of his/her activities	improves the safety of his/her own actions
	abides by the safety instructions given and does not endanger him-/herself or others	abides by the work community's instructions and reports emergencies	perceives and identifies work-related risks and takes account of the other members of the work community whilst doing his/her job
	uses personal protective equipment, tools and working methods safely by following instructions	makes sure that protective equipment, tools and materials are safe, removing faulty tools and taking it away to be serviced	assesses the suitability of protective equipment, tools and working methods for the job in hand and independently ensures the occupational safety of his/her surroundings
	under supervision, considers his/her ability to function and work	is motivated to maintain a healthy lifestyle as well as the ability to function and work	is motivated to maintain and promote a healthy lifestyle as well as the ability to function and work independently

Interaction and cooperation	takes account of the actions of other groups in the work environment, following instructions	takes account of the actions of other groups in the work environment	adapts his/her work to other activities taking place in the work environment, and is able to discover the needs of other groups
	works together with team members	works constructively together with different people and as an active member of the work team	works constructively together with different people and as an active member of the work team, and encourages and supports the work team
Learning and problem solving	assesses his/her work under supervision	assesses his/her work	assesses his/her work in accordance with quality requirements
Vocational ethics	under supervision, observes the financial, social and sustainable development-related values agreed upon.	observes the financial, social and sustainable development-related values agreed upon.	observes the financial, social and sustainable development-related values in place.

Ways of demonstrating vocational skills

Student/candidate demonstrates his/her vocational skills by executing work in the field in connection with special cadastral surveying or studying records in an authentic work situation or in another place that corresponds to genuine working conditions as closely as possible. The work is carried out to an extent that makes it possible to establish that the vocational skills meet the requirements.

A skills demonstration to comprise at least:

- ◆ mastering the work process in its entirety
- ◆ mastering the work method, equipment and material in its entirety
- ◆ underpinning knowledge in its entirety
- ◆ key competences for lifelong learning: health, safety and ability to function and interaction and cooperation

If the vocational skills required in the module cannot be shown in a skills demonstration or a competence test, it is to be completed with such other assessment of competence as interviews, assignments and other reliable methods.

4.2.7 Infrastructure surveying

Vocational skills requirements

The student or candidate will be able to

- ◆ plan his/her work, observing the quality requirements in place for the work and taking account of the whole process
- ◆ use the measuring instruments and materials needed for survey work and ensure that the measuring equipment is in working order
- ◆ take surveying and marking measurements relating to infrastructure construction
- ◆ make use of information technology in his/her work
- ◆ process measurement data, make calculations, produce printouts, an report on his/her work
- ◆ observing the regulations, look for the information he/she needs in plans and diagrams the survey work is based on and process it in the correct format
- ◆ take account of the accuracy requirements in survey work, check the reliability of his/her measurements, and observe all relevant recommendations, instructions, regulations and legislation
- ◆ take account of the requirements governing occupational health, working safely and maintaining the ability to function
- ◆ interact and cooperate with members of the work community and others when carrying out various assignments
- ◆ assess his/her own work performance, solve problems and act in accordance with the ethical principles of the profession.

The aim of this unit is to acquire the competence needed for carrying out assignments connected with infrastructure construction. This may focus on foundation engineering, measuring traffic routes, tunnels, railway tracks and bridges, industrial measurements/surveys or similar tasks. New surveying methods are frequently applied in such tasks, with the additional benefit of the opportunities afforded by automation and information technology.

Assessment

The table shows the targets of assessment and the assessment criteria for three levels of competence. In vocational upper secondary education and training, the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
1. Mastering the work process	Satisfactory 1	Good 2	Excellent 3
	The student or candidate		
Planning one's work	plans his/her work, under supervision	plans his/her work, following instructions issued	adapts his/her work according to the situation and circumstances
	observes working hours and follows work instructions under supervision	observes working hours and follows work instructions issued	observes working hours, follows work instructions, and negotiates any changes to these
Observation of the quality requirements for work	under supervision, works in accordance with targets and regulations	works in accordance with targets and regulations	works in accordance with targets and regulations, and develops his/her own contribution to the achievement of targets
Mastering the work in its entirety	under supervision, performs the tasks given	sees his/her contribution as part of a larger whole	carries out his/her work while observing the overall requirements
	understands the on-site procedures and can work in accordance with them, under supervision.	understands the on-site procedures and can work in accordance with them.	understands the on-site procedures and works accordingly in a way that is optimal for the type of situation and surroundings.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
2. Mastering the work methods, equipment and material	Satisfactory 1	Good 2	Excellent 3
	The student or candidate		
Use of measuring instruments, materials and information technology	needs guidance in selecting tools, applying them to work situations and choosing work methods	is able to work in normal situations and learns how to use new tools	selects the tools best suited to the situation and adapts to new work situations and circumstances
	under supervision, uses and maintains equipment	uses and maintains equipment, in accordance with instructions	uses equipment effectively, solves problems with equipment independently, and maintains the equipment he/she uses
	uses materials under guidance	uses materials in accordance with instructions	uses materials carefully and economically, observing the principles of sustainable development

Carrying out surveying and setting out measurements	takes measurements as requested and under supervision	takes normal measurements in accordance with the requirements of the job	takes measurements using methods with reference to the requirements of the work site, in varying circumstances
	makes benchmarks in the field, as requested	makes benchmarks in the field in accordance with the survey work objective	makes benchmarks in the field as agreed according to the situation and as dictated by work site conditions
Processing measurement data, producing printouts and reporting on the work	under supervision, processes measurement data in the required format, and produces printouts and reports, as requested	processes normal, job-related measurement data in the appropriate format and produces the required printouts and reports	processes measurement data as required for the job in the appropriate file formats, and produces printouts and reports according to the situation
	performs requested calculations, under supervision.	performs ordinary calculations as required for the job.	looks for the source data needed for performing task-related calculations and determines the data needed for each situation.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
3. Underpinning knowledge	Satisfactory 1	Good 2	Excellent 3
	The student or candidate		
Looking for information in plans and diagrams and processing it in the correct format	is familiar with and observes the recommendations, instructions, regulations and legislation that apply to his/her work and acts according to instructions	is familiar with and observes the recommendations, instructions, regulations and legislation that impact on the work, and works in accordance with them	is familiar with and applies the recommendations, instructions, regulations and legislation in his/her work, as the situation requires and in varying circumstances
	under supervision, acquires the source data required for the job	acquires the source data required for the job and processes it in the required format	acquires the source data required for the job, supplements it, where necessary and as required, and makes any necessary format conversions
	under supervision, interprets the markings on land use plans	is familiar with the markings on land use plans, and is able to read plans with reference to surveying needs	is familiar with the markings on land use plans, identifies errors in plans and explores ways to correct them
Taking account of accuracy requirements and checking procedures	carries out tasks to the degree of accuracy agreed and carries out checks, as requested.	ensures that accuracy requirements are met and checks measurements as required.	examines the accuracy requirements relating to the job, ensures that they are met, and solves any problems.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
4. Key competences for lifelong learning	Satisfactory 1	Good 2	Excellent 3
	The student or candidate		
Health, safety and ability to function	has a positive attitude towards safe activities and avoids risks in his/her work	assumes responsibility for the safety of his/her activities	improves the safety of his/her own actions
	abides by the safety instructions given and does not endanger him-/herself or others	abides by the work community's instructions and reports emergencies	perceives and identifies work-related risks and takes account of the other members of the work community whilst doing his/her job
	uses personal protective equipment, tools and working methods safely by following instructions	makes sure that protective equipment, tools and materials are safe, removing faulty tools and taking it away to be serviced	assesses the suitability of protective equipment, tools and working methods for the job in hand and independently ensures the occupational safety of his/her surroundings
Health, safety and ability to function	under supervision, considers his/her ability to function and work	is motivated to maintain a healthy lifestyle as well as the ability to function and work	is motivated to maintain and promote a healthy lifestyle as well as the ability to function and work independently
Interaction and cooperation	takes account of the actions of other groups in the work environment, following instructions	takes account of the actions of other groups in the work environment	adapts his/her work to other activities taking place in the work environment, and is able to discover the needs of other groups
	works together with team members	works constructively together with different people and as an active member of the work team	works constructively together with different people and as an active member of the work team, and encourages and supports the work team
Learning and problem solving	assesses his/her work under supervision	assesses his/her work	assesses his/her work in accordance with quality requirements
Vocational ethics	under supervision, observes the financial, social and sustainable development-related values agreed upon.	observes the financial, social and sustainable development-related values agreed upon.	observes the financial, social and sustainable development-related values in place.

Ways of demonstrating vocational skills

Student/candidate demonstrates his/her vocational skills by carrying out surveying work connected with infrastructure construction in accordance with a plan, and by making the benchmarks needed on a work site, or by processing the measurement data resulting from survey work, as required to achieve the objectives of the work, to be able to produce the necessary printouts. The work is carried out on a genuine work site or in another place that corresponds to genuine conditions on a site as closely as possible. The work is carried out to an extent that makes it possible to establish that the vocational skills meet the requirements.

A skills demonstration to comprise at least:

- ◆ mastering the work process in its entirety
- ◆ mastering the work method, equipment and material in its entirety
- ◆ underpinning knowledge in its entirety
- ◆ key competences for lifelong learning: health, safety and ability to function and interaction and cooperation

If the vocational skills required in the module cannot be shown in a skills demonstration or a competence test, it is to be completed with such other assessment of competence as interviews, assignments and other reliable methods.

4.2.8 GIS data processing

Vocational skills requirements

The student or candidate will be able to

- ◆ plan his/her work, observing the quality requirements in place for the work and taking account of the whole process
- ◆ process different cartographical and GIS data
- ◆ use the various types of computer program required for the work: mapping, GIS, CAD, laser scanning and imaging software, and necessary peripherals
- ◆ produce new data by combining different cartographical and GIS data and by producing questionnaires and making analyses based on GIS data
- ◆ make visual presentations to illustrate geographical information and report on his/her work
- ◆ look for information in data and registers and use it as an aid in his/her work

- ♦ take account of the recommendations, instructions, regulations and legislation in place for creating cartographical and geographical information products and observe the accuracy requirements in effect
- ♦ take account of the requirements governing occupational health, working safely and maintaining the ability to function
- ♦ interact and cooperate with members of the work community and others when carrying out various assignments
- ♦ assess his/her own work performance, solve problems and act in accordance with the ethical principles of the profession.

Assessment

The table shows the targets of assessment and the assessment criteria for three levels of competence. In vocational upper secondary education and training, the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
1. Mastering the work process	The student or candidate		
Planning one's work	plans his/her work, under supervision	plans his/her work, following instructions issued	adapts his/her work according to the situation and circumstances
	observes working hours and follows work instructions under supervision	observes working hours and follows work instructions issued	observes working hours, follows work instructions, and negotiates any changes to these
Observation of the quality requirements for work	under supervision, works in accordance with targets and regulations	works in accordance with targets and regulations	works in accordance with targets and regulations, and develops his/her own contribution to the achievement of targets
Mastering the work in its entirety	under supervision, performs the tasks given	sees his/her contribution as part of a larger whole	carries out his/her work while observing the overall requirements
	understands the on-site procedures and can work in accordance with them, under supervision.	understands the on-site procedures and can work in accordance with them.	understands the on-site procedures and works accordingly in a way that is optimal for the type of situation and surroundings.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
2. Mastering the work methods, equipment and material	The student or candidate		
Processing cartographical and geographical information	carries out data processing tasks, under supervision	carries out normal data processing tasks, in accordance with the work requirements	carries out normal data processing tasks, in accordance with the work requirements, and solves problems independently
Use of software and equipment	needs guidance in the use of software and equipment	uses different software and equipment in normal situations at work	uses different software and equipment effectively, and independently solves problems
Combining different sets of data, producing questionnaires and making analyses	under supervision, combines different sets of data, produces simple questionnaires, and makes simple analyses	combines different sets of data, produces questionnaires and makes analyses, as required for the job	combines different sets of data as required for the job, and is able to utilise and apply questionnaires and analyses in his/her work
Making visual presentations and reporting on the work.	under supervision, makes visual presentations, as required, and produces reports, as requested.	makes visual presentations, as required, and produces reports, as required for the job.	makes visual presentations, as required, produces reports, as required for the job, and solves problems independently.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
3. Underpinning knowledge	The student or candidate		
Looking for and using information in data and registers	is familiar with the various types of GIS data and data formats, and looks for information in them, under supervision	acquires the data needed for the job and processes it in the required format	acquires the data needed for the job, supplements it where necessary and as required for the job, and processes the data in the required format
Taking account of instructions and the requirements governing accuracy	is familiar with and observes the recommendations, instructions, regulations and legislation that apply to his/her work and acts according to instructions.	is familiar with and observes the recommendations, instructions, regulations and legislation that impact on the work.	is familiar with and applies the recommendations, instructions, regulations and legislation that impact on the work, and solves problems.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
4. Key competences for lifelong learning	Satisfactory 1	Good 2	Excellent 3
	The student or candidate		
Health, safety and ability to function	has a positive attitude towards safe activities and avoids risks in his/her work	assumes responsibility for the safety of his/her activities	improves the safety of his/her own actions
	abides by the safety instructions given and does not endanger him-/herself or others	abides by the work community's instructions and reports emergencies	perceives and identifies work-related risks and takes account of the other members of the work community whilst doing his/her job
	uses personal protective equipment, tools and working methods safely by following instructions	makes sure that protective equipment, tools and materials are safe, removing faulty tools and taking it away to be serviced	assesses the suitability of protective equipment, tools and working methods for the job in hand and independently ensures the occupational safety of his/her surroundings
	under supervision, considers his/her ability to function and work	is motivated to maintain a healthy lifestyle as well as the ability to function and work	is motivated to maintain and promote a healthy lifestyle as well as the ability to function and work independently
Interaction and cooperation	takes account of the actions of other groups in the work environment, following instructions	takes account of the actions of other groups in the work environment	adapts his/her work to other activities taking place in the work environment, and is able to discover the needs of other groups
	works together with team members	works constructively together with different people and as an active member of the work team	works constructively together with different people and as an active member of the work team, and encourages and supports the work team
Learning and problem solving	assesses his/her work under supervision	assesses his/her work	assesses his/her work in accordance with quality requirements
Vocational ethics	under supervision, observes the financial, social and sustainable development-related values agreed upon.	observes the financial, social and sustainable development-related values agreed upon.	observes the financial, social and sustainable development-related values in place.

Ways of demonstrating vocational skills

Student/candidate demonstrates his/her vocational skills by processing geographical information in an authentic work situation or in another place that corresponds to genuine conditions on a site as closely as possible. The work is carried out to an extent that makes it possible to establish that the vocational skills meet the requirements.

A skills demonstration to comprise at least:

- ◆ mastering the work process in its entirety
- ◆ mastering the work method, equipment and material in its entirety
- ◆ underpinning knowledge in its entirety
- ◆ key competences for lifelong learning: health, safety and ability to function and interaction and cooperation

If the vocational skills required in the module cannot be shown in a skills demonstration or a competence test, it is to be completed with such other assessment of competence as interviews, assignments and other reliable methods.

4.2.9 Mine surveying

Vocational skills requirements

The student or candidate will be able to

- ◆ plan his/her work, observing regulations, the demands of occupational safety, and the quality requirements in place for the work and taking account of the whole process
- ◆ take control point, surveying and marking measurements in connection with mine surveying
- ◆ make use of information technology in his/her work
- ◆ select the correct measuring methods, use the measuring instruments and materials needed for survey work and ensure that the measuring equipment is in working order and is regularly checked
- ◆ process measuring data, perform calculations, produce mining maps and print-outs, and report on his/her work, as the situation requires
- ◆ interpret plans and diagrams serving as the basis for the work, look for the information he/she needs in them, and transfer this to the field

- ♦ take account of the accuracy requirements in survey work, check the reliability of his/her measurements, and establish as-built dimensions, as required
- ♦ take account of the requirements governing occupational health, working safely and maintaining the ability to function
- ♦ interact and cooperate with members of the work community and others when carrying out various assignments
- ♦ assess his/her own work performance, solve problems and act in accordance with the ethical principles of the profession.

The aim of this module is to acquire the competence needed for survey work in mine areas. This may focus on control point measurements and actual mine surveying above and under the ground and measuring buildings and other sites, including a mining concession. New surveying methods are frequently applied in such tasks, with the additional benefit of the opportunities afforded by automation and information technology.

Assessment

The table shows the targets of assessment and the assessment criteria for three levels of competence. In vocational upper secondary education and training, the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
1. Mastering the work process	The student or candidate		
Planning one's work	plans his/her work, under supervision	plans his/her work, following instructions issued	adapts his/her work according to the situation and circumstances
	observes working hours and follows work instructions under supervision	observes working hours and follows work instructions issued	observes working hours, follows work instructions, and negotiates any changes to these
Observation of the quality requirements for work	under supervision, works in accordance with targets and regulations	works in accordance with targets and regulations	works in accordance with targets and regulations, and develops his/her own contribution to the achievement of targets

Mastering the work in its entirety	under supervision, performs the tasks given	sees his/her contribution as part of a larger whole	carries out his/her work while observing the overall requirements
	understands the on-site procedures and can work in accordance with them, under supervision.	understands the on-site procedures and can work in accordance with them.	understands the on-site procedures and works accordingly in a way that is optimal for the type of situation and surroundings.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
2. Mastering the work methods, equipment and material	The student or candidate		
Carrying out network, surveying and setting out measurements	takes measurements as requested and under supervision	takes normal measurements in accordance with the requirements of the job	takes measurements using methods with reference to the requirements of the work site, in varying circumstances
	makes benchmarks in the field, as requested	makes benchmarks in the field in accordance with the survey work objective	makes benchmarks in the field as agreed according to the situation and as dictated by work site conditions
Use of measuring instruments, materials and information technology	needs guidance in selecting tools, applying them to work situations and choosing work methods	is able to work in normal situations and learns how to use new tools	selects the tools best suited to the situation and adapts to new work situations and circumstances
	under supervision, uses and maintains equipment	uses and maintains equipment, in accordance with instructions	uses equipment effectively, solves problems with equipment independently, and maintains the equipment he/she uses
	uses materials under guidance	uses materials in accordance with instructions	uses materials carefully and economically, observing the principles of sustainable development
Processing measurement data, producing printouts and reporting on the work	under supervision, processes measurement data in the required format, and produces printouts and reports, as requested	processes normal, job-related measurement data in the appropriate format and produces the required printouts and reports	processes measurement data as required for the job in the appropriate file formats, and produces printouts and reports according to the situation
	performs requested calculations, under supervision.	performs ordinary calculations as required for the job.	looks for the source data needed for performing task-related calculations and determines the data needed for each situation.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
3. Underpinning knowledge	Satisfactory 1	Good 2	Excellent 3
	The student or candidate		
Looking for information in plans and drawings and processing it in the correct format	is familiar with and observes the regulations and instructions that apply to his/her work and acts according to instructions	is familiar with and observes the regulations and instructions that impact on the work, and works in accordance with them	is familiar with and applies the instructions and regulations in his/her work, as the situation requires and in varying circumstances
	under supervision, acquires the data required for the job	acquires the data required for the job and processes it in the required format	acquires the data required for the job, supplements it where necessary and as required, and makes any necessary format conversions
	under supervision, interprets the markings on plans and drawings	is familiar with the markings on plans and drawings, and is able to read plans with reference to surveying needs	is familiar with the markings on plans and drawings, and identifies errors in plans and explores ways to correct them
Taking account of accuracy requirements and checking procedures	carries out tasks to the degree of accuracy agreed and carries out checks, as requested.	ensures that accuracy requirements are met and checks measurements as required.	examines the accuracy requirements relating to the job, ensures that they are met, and solves any problems.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
4. Key competences for lifelong learning	Satisfactory 1	Good 2	Excellent 3
	The student or candidate		
Health, safety and ability to function	has a positive attitude towards safe activities and avoids risks in his/her work	assumes responsibility for the safety of his/her activities	improves the safety of his/her own actions
	abides by the safety instructions given and does not endanger him-/herself or others	abides by the work community's instructions and reports emergencies	perceives and identifies work-related risks and takes account of the other members of the work community whilst doing his/her job
	uses personal protective equipment, tools and working methods safely by following instructions	makes sure that protective equipment, tools and materials are safe, removing faulty tools and taking it away to be serviced	assesses the suitability of protective equipment, tools and working methods for the job in hand and independently ensures the occupational safety of his/her surroundings

	under supervision, considers his/her ability to function and work	is motivated to maintain a healthy lifestyle as well as the ability to function and work	is motivated to maintain and promote a healthy lifestyle as well as the ability to function and work independently
Interaction and cooperation	takes account of the actions of other groups in the work environment, following instructions	takes account of the actions of other groups in the work environment	adapts his/her work to other activities taking place in the work environment, and is able to discover the needs of other groups
	works together with team members	works constructively together with different people and as an active member of the work team	works constructively together with different people and as an active member of the work team, and encourages and supports the work team
Learning and problem solving	assesses his/her work under supervision	assesses his/her work	assesses his/her work in accordance with quality requirements
Vocational ethics	under supervision, observes the financial, social and sustainable development-related values agreed upon.	observes the financial, social and sustainable development-related values agreed upon.	observes the financial, social and sustainable development-related values in place.

Ways of demonstrating vocational skills

Student/candidate demonstrates his/her vocational skills by carrying out mine surveying and setting out work in accordance with a plan, and by making the benchmarks needed on a work site, or by processing the measurement data resulting from mine survey work, as required to achieve the objectives of the work, to be able to produce the necessary printouts. The work is carried out on a genuine work site or in another place that corresponds to genuine conditions on a site as closely as possible. The work is carried out to an extent that makes it possible to establish that the vocational skills meet the requirements.

A skills demonstration to comprise at least:

- ◆ mastering the work process in its entirety
- ◆ mastering the work method, equipment and material in its entirety
- ◆ underpinning knowledge in its entirety
- ◆ key competences for lifelong learning: health, safety and ability to function and interaction and cooperation

If the vocational skills required in the module cannot be shown in a skills demonstration or a competence test, it is to be completed with such other assessment of competence as interviews, assignments and other reliable methods.

4.2.10 Module from vocational upper secondary qualifications

One module from other vocational upper secondary qualifications can be included in a Vocational Qualification in Land Surveying.

- ◆ Vocational Qualification in Construction, the module for measuring
- ◆ Vocational Qualification in Technical Design, the module for planning the infrastructure

In the competence-based qualification system, a certificate of a completed vocational qualification module is always issued by the committee in charge of the qualification in question. The qualification committee responsible for the Vocational Qualification in Land Surveying approves the module in question as a part of the Vocational Qualification in Land Surveying on the basis of the certificate.

4.2.11 Module from further vocational qualifications

One vocational module from any further vocational qualification can be included in a Vocational Qualification in Land Surveying.

The education provider must have a valid contract for arranging the further vocational qualification in question or the education provider can purchase the competence tests from an education provider with such a contract for arranging qualifications.

In vocational upper secondary education and training, a certificate of a completed further vocational qualification module is always issued by the qualification committee in charge of the qualification in question and the education provider accepts the further vocational qualification module into the qualification certificate of the student.

In a competence-based qualification system, a certificate of a completed further vocational qualification module is always issued by the qualification committee in charge of the qualification in question. The qualification committee responsible for the Vocational Qualification in Land Surveying approves the module in question as a part of the Vocational Qualification in Land Surveying on the basis of the certificate.

4.2.12 Module from specialist vocational qualifications

One vocational module from any specialist vocational qualification can be included in a Vocational Qualification in Land Surveying.

The education provider must have a valid contract for arranging the specialist vocational qualification in question or the education provider can purchase the competence tests from an education provider with such a contract for arranging qualifications.

In vocational upper secondary education and training, a certificate for a completed specialist vocational qualification module is always issued by the qualification committee in charge of the qualification in question and the education provider accepts the specialist vocational qualification module into the qualification certificate of the student.

In a competence-based qualification system, a certificate of a completed specialist vocational qualification module is always issued by the qualification committee in charge of the qualification in question. The qualification committee responsible for the Vocational Qualification in Land Surveying approves the module in question as a part of the Vocational Qualification in Land Surveying on the basis of the certificate.

4.2.13 Locally offered modules

In its approved curriculum, the education provider offers modules that include vocational skills requirements based on the needs of local and regional working life. The module names must reflect the integrated activities in working life. Skills requirements and assessment criteria must be drawn up for them as well as ways to demonstrate vocational skills in line with Chapter 9.3 in the appendices under “Vocational skills requirements, targets of assessment and general assessment criteria”.

4.3 OTHER OPTIONAL MODULES IN VOCATIONAL UPPER SECONDARY EDUCATION AND TRAINING

In its approved curriculum, the education provider offers optional modules, which can be advanced or enhancing optional modules, core subjects or general upper secondary studies. Advanced or enhancing vocational modules may include modules with contents based on needs of local or regional working life, modules from other vocational qualifications as well as competence acquired at work. The modules must

have a name and their skills requirements, objectives and assessment criteria listed, as well as the ways of demonstrating the skills described for vocational modules.

As to offering other optional modules, the education provider may work together with working life and other education providers. The student can also choose these modules from modules offered by other education providers.

The scope of core subjects and general upper secondary studies must not exceed 10 credits in optional modules.

4.3.1 Entrepreneurship

Skills requirements

As part of a team, a student will be able to

- ◆ assess productization opportunities
- ◆ assess the operating opportunities of a planned business
- ◆ specify a financially profitable business idea and develop a mission statement
- ◆ find a working partner company
- ◆ draw up a preliminary business and financial plan
- ◆ present the business and financial plans to business consultants and financiers
- ◆ negotiate on the company's operating opportunities and financing required to set it up
- ◆ set up a business
- ◆ plan and start business operations
- ◆ work in the business and carry out its core tasks
- ◆ work with providers of business support services
- ◆ terminate the business activities on completion of studies or continue them as part of his/her Business Operations studies (10 credits) aiming at setting up a business of his/her own.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. The targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
1. Mastering the work process	Satisfactory 1	Good 2	Excellent 3
	Student		
Planning one's own work	contributes to planning business operations and works as a team member	plans business operations and works spontaneously and responsibly as a team member	plans business operations innovatively and works spontaneously, responsibly and supportively as a team member
	assumes responsibility for his/her work as agreed	assumes joint responsibility for the tasks agreed	assumes responsibility for the activities of the whole team for completing the tasks agreed under joint responsibility
Mastering the work entity	proceeds systematically in his/her work under instructions	proceeds systematically and fluently in his/her work	advances systematically and fluently in his/her work adjusting it to the activities of the team
	participates in agreed meetings with the partner networks	acquires partners and acts in partner networks	acquires partners and makes use of partner networks to develop operations
High-quality operations	works in accordance with quality objectives set for his/her work and changes his/her own activities based on given feedback	works in accordance with the quality objectives set together and assesses his/her own activities in reaching them	works in accordance with the quality objectives set together and develops his/her activities to reach them
	works in a service oriented manner.	works in a service oriented manner and promotes customer satisfaction.	works in a service oriented manner and promotes customer satisfaction.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
2. Mastering the work method, equipment and material	Satisfactory 1	Good 2	Excellent 3
	Student		
	uses the most common company tools, such as equipment and machinery, computers and applications	uses company tools, such as equipment and machinery, computers and applications	uses the company tools, such as equipment and machinery, computers and applications independently
	observes the principles of information security.	observes the principles of information security.	observes the principles of information security.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
3. Underpinning knowledge	Satisfactory 1	Good 2	Excellent 3
	Student		
Assessing productizing and operating opportunities	makes use of the business opportunities in productizing offered by his/or her own field or other fields in cooperation with the team	makes use of the business opportunities in productizing, offered by his/or her own field or other fields in cooperation with the team	makes use of the business opportunities in productizing, offered by his/or her own field or other fields in cooperation with the team
		searches information available in different networks	makes use of information available in different networks
	surveys businesses operating in the field and finds information on acting as an entrepreneur in the field, working under instructions in a team	surveys businesses operating in the field and finds information on acting as an entrepreneur in the field, working in a team	surveys businesses operating in the field and finds information on acting as an entrepreneur in the field, working in a team
	follows development in the field from business point of view, working under instructions in a team	follows development in the field from business point of view working in a team	follows development and outlook in the field from business point of view working in a team
	assesses his/her own possibilities as an entrepreneur, working under guidance in a team	assesses his/her own possibilities as an entrepreneur working in a team	assesses independently his/her possibilities as an entrepreneur and sets personal development objectives
Refining the business plan	finds out about the operating opportunities of the enterprise to be set up, working under guidance in a team	finds out about and reports on the operating opportunities of the enterprise to be set up in cooperation with the team	finds out about and reports on the operating opportunities of the enterprise to be set up in cooperation with the team
	selects form of enterprise and draws up the documents needed for setting up a business, working under instructions in a team	selects form of enterprise and draws up the documents needed for setting up a business, working in a team	selects form of enterprise and draws up the documents needed for setting up a business, working in a team
		takes part in acquiring information from key authorities	acquires information from key authorities independently

Planning business operations and working in the company	takes part in search for information needed when planning operations, e.g. how a product or service is produced and sold and how finances are taken care of, working under instructions in a team	takes part in search for information needed when planning operations, e.g. how a product or service is produced and sold and how finances are taken care of, working in a team	makes use of information needed when planning operations on how a product or service is produced and sold and how finances are taken care of, working in a team
	takes part in search for information needed when planning company logistics working under guidance in a team	takes part in search for information needed when planning company logistics, working in a team	makes use of information needed when planning company logistics, working in a team
	working in a team, acquires information on support services available when setting up a business and running it, e.g. accounting office services	working in a team, acquires information on support services available when setting up a business and running it, e.g. accounting office services	working in a team, acquires information on support services available when setting up a business and running it, e.g. accounting office services
	applies the underpinning knowledge needed to complete agreed tasks, working under instructions	applies the underpinning knowledge needed to run the business	independently applies the underpinning knowledge needed to run the business
	finds out under guidance what legislation requires bookkeeping	finds out what legislation requires bookkeeping	finds out what legislation requires bookkeeping and why
	keeps the receipts and vouchers needed for bookkeeping, working under instructions.	keeps the receipts and vouchers needed for bookkeeping	keeps the receipts and vouchers needed for bookkeeping
		interprets the business's profit and loss account and balance sheet e.g. with the help of an accounting firm.	interprets business's profit and loss account and balance sheet e.g. with the help of an accounting firm.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
4. Key competences for lifelong learning	Satisfactory 1	Good 2	Excellent 3
	Student		
Learning and problem solving	acquires under instructions information on key regulations related to products, services and contracts	finds information on key legislation and other statutes concerning products, services and contracts	applies key legislation and other statutes concerning products, services and contracts

Interaction and cooperation	participates in preparing choices and decisions in the team	makes proposals, choices and decisions in the team	makes justified proposals, choices and decisions in the team to develop business operations
	assesses his/her own activities and progress made under guidance	assesses his/her own activities and progress made	assesses his/her own activities and progress made in his/her work and business operations
	participates in cooperation negotiations with team members and stakeholders	negotiates on cooperation with team members and participates in negotiations with stakeholders	negotiates on cooperation with team members and stakeholders
Vocational ethics	observes financial, social and sustainable development related values in business operations under instructions	observes financial, social and sustainable development related values in business operations	observes financial, social and sustainable development related values in business operations
Health, safety and ability to function	follows occupational safety regulations in the field in his/her activities and customer service situations	follows occupational safety regulations in the field in his/her activities and customer service situations	follows occupational safety regulations in the field in his/her activities and customer service situations
	protects him-/herself from work and working environment related dangers under guidance	protects him-/herself from work and working environment related dangers	protects him-/herself from work and working environment related dangers
	ensures his/her own safety and that of the colleagues and customers in familiar situations under guidance.	ensures his/her own safety and that of the colleagues and customers in different situations as instructed.	ensures his/her own safety and that of the colleagues and customers in different situations
			develops the safety of his/her team and ability to work by developing own working practices and environment instructs others to act in a healthy and safe way when working as a team member.

Ways of demonstrating vocational skills

Student demonstrates his/her vocational skills by working in cooperation with team members, representatives of partner companies, stakeholders or other parties in practice enterprises and the like.

A skills demonstration must cover completely

- ◆ mastering the work processes
- ◆ mastering the work methods, equipment and material
- ◆ underpinning knowledge
- ◆ mastering key competences for lifelong learning.

If the vocational skills required in the module cannot be shown in a skills demonstration in full, it is completed with such other assessment of competence as interviews, assignments and other reliable methods.

4.3.2 Workplace Instructor Training

Skills requirements

Student is able to

- ◆ recognise the tasks at the workplace suited to on-the-job learning or skills demonstrations and finds out about their targets of assessment and assessment criteria
- ◆ negotiate on implementation of on-the-job learning and skills demonstrations in the work community
- ◆ prepare on-the-job learning and skills demonstration plans in cooperation with the teacher and workplace instructor
- ◆ instruct other students on the working tasks, customs and rules at the workplace or at school
- ◆ present the training and working opportunities in the field e.g. to students in an introductory period
- ◆ have guidance discussions, develop own activities based on feedback and arbitrate differences of opinion
- ◆ work with different learners and colleagues
- ◆ receive and give constructive feedback
- ◆ self-assess on-the-job learning and skills demonstration in accordance with the targets of assessment and assessment criteria agreed earlier
- ◆ assess occupational safety risks in his/her work and know how to act and also instruct others to act in accordance with the occupational safety instructions.

Assessment

The table comprises the targets of assessment and assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training, the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
1. Mastering the work process	Satisfactory 1	Good 2	Excellent 3
	Student		
Planning one's own work and drawing up plans	prepares on-the-job learning and skills demonstration plans under instructions	prepares on-the-job learning and skills demonstration plans as instructed	prepares on-the-job learning and skills demonstration plans independently and proactively
Mastering the work entity	needs instructions at times.	completes given tasks independently.	proceeds fluently in his/her work adjusting it to the activities of the working environment.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
2. Mastering the work method, equipment and material	Satisfactory 1	Good 2	Excellent 3
	Student		
Guiding a student	guides other students under instructions	guides other students as instructed and holds guidance discussions	instructs other students, acts flexibly with different people and arbitrates differences of opinion
Assessing a student	accepts and gives feedback on a tasks under instructions as well as, under instructions, self-assesses on-the-job learning and skills demonstrations based on targets of assessment and assessment criteria agreed beforehand.	accepts and gives feedback on a task as well as self-assesses on-the-job learning and skills demonstrations based on targets of assessment and assessment criteria agreed beforehand.	holds constructive feedback discussions and self-assesses on-the-job learning and skills demonstrations based on targets of assessment and assessment criteria agreed beforehand.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
3. Underpinning knowledge	Satisfactory 1	Good 2	Excellent 3
	Student		
Knowledge of working life and training opportunities in one's own field	presents some of the working and training opportunities in the field	presents working and training opportunities in the field	presents independently and variedly working and training opportunities in the field
Knowledge of curricula	recognises, under instructions, the subject matter to be learnt during on-the-job learning and the competence to be assessed in skills demonstration.	recognizes, as instructed, the subject matter to be learnt during on-the-job learning and the competence to be assessed in skills demonstration.	recognizes independently the subject matter to be learnt during on-the-job learning and the competence to be assessed in skills demonstration.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
4. Key competences for lifelong learning	Satisfactory 1	Good 2	Excellent 3
	Student		
Health, safety and ability to function	assesses occupational safety risks involved and follows the occupational safety instructions given.	assesses occupational safety risks involved and follows the occupational safety instructions given.	assesses occupational safety risks involved, follows and also instructs others to follow the occupational safety instructions given.

Ways of demonstrating vocational skills

Student demonstrates his/her vocational skills by preparing an on-the-job learning or skills demonstration plan. He/She studies the activities, tasks, working culture and rules of the work community and assesses the occupational safety risks and ergonomics issues involved from his/her own work point of view. Student examines the opportunities of arranging his/her on-the-job learning and skills demonstration assessments at the workplace.

The skills demonstration is mainly given in connection with another skills demonstration.

A skills demonstration is to comprise at least

- ◆ mastering the work process
- ◆ mastering the work methods, equipment and materials: the guidance of the student, the assessment of learning and competence
- ◆ underpinning knowledge: the knowledge of the requirements of vocational qualifications
- ◆ mastering the key competences for lifelong learning: health, safety and ability to function.

If the vocational skills required in the module cannot be shown in a skills demonstration in full, it is completed with such other assessment of competence as interviews, assignments and other reliable methods.

4.3.3 In-depth and enhancing vocational modules

In its approved curriculum, the education provider offers advanced or enhancing vocational modules the contents of which are based on the needs of local or regional working life. The module names must reflect the integrated activities in working life and their skills requirements, objectives and assessment criteria must be drawn up as well as the ways of demonstrating the skills in line with what is said in Chapter 9.3 in the appendices under “Vocational skills requirements, targets of assessment and general assessment criteria”. As to offering other optional modules, the education provider can work together with working life and other education providers.

4.3.4 Core subjects

In its curriculum, the education provider offers core subjects which increase the student’s opportunities of choosing core subjects listed in Chapter 5. The modules can be optional supplements to the compulsory ones (see the qualification requirements Chapter 5.2.1). The education provider determines the objectives, core contents and assessment for these modules. The modules may also be optional modules from core subjects presented in the qualification requirements in Chapters 5.2.2–5.2.7. The education provider may also offer them in cooperation with other education providers. The student can also choose these studies from modules offered by other education providers.

4.3.5 General upper secondary studies

In its curriculum, the education provider offers a student an opportunity to include in his/her qualification general upper secondary studies arranged by general upper secondary schools in accordance with the general upper secondary school curriculum and for which the general upper secondary school awards a certificate. The education provider may also offer them in cooperation with other education providers. The education provider can also decide that a student can choose general upper secondary studies (e.g. e-learning) from the spectrum offered by different general upper secondary education providers.

4.4 MODULES PROVIDING INDIVIDUAL IN-DEPTH VOCATIONAL COMPETENCE (MODULES THAT EXPAND THE SCOPE OF A VOCATIONAL UPPER SECONDARY QUALIFICATION)

The student or candidate may individually include in his/her vocational upper secondary qualification more modules, when it is necessary from the point of view of field-specific or local skills requirements or strengthening the vocational skills of the candidate. Modules providing advanced individual vocational competence should be implemented as widely as possible in workplaces with working life.

4.4.1 Business Operations

Skills requirements

The student or candidate is able to

- ◆ assess the possibilities of productization of his/her own competence (product or service)
- ◆ study the business operations environment of the company to be established
- ◆ identify and acquire cooperation businesses and partners
- ◆ find, recognise and assess the company's operating potential
- ◆ select a financially profitable business idea and develop a mission statement
- ◆ draw up a business plan for the enterprise
- ◆ make a management plan for the company's accounts and finance and find out about the resources required to run it
- ◆ present the business and financial plans to business consultants and financiers
- ◆ negotiate on company's operating potential and financing
- ◆ plan the manufacturing of the company's products and provision of its services
- ◆ prepare a marketing plan and report on it as well as decide on marketing activities
- ◆ make the logistics decisions needed
- ◆ prepare a company risk analysis
- ◆ plan the implementation and key tasks of profitable business operations
- ◆ select the form of enterprise, establish a business and close it down.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training, the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
1. Mastering the work process	The student or candidate		
Planning one's own work and drawing up plans	plans business operations under guidance	plans the operations of his/her enterprise and acts independently and responsibly	plans the operations of his/her enterprise innovatively and acts independently, responsibly and supportively
Managing the work entity	proceeds systematically in his/her work under guidance	proceeds systematically and fluently in his/her work	proceeds systematically and fluently in his/her work
	acquires a partner company under guidance	acquires partners and acts in partner networks	acquires partners, makes use of partner networks to develop operations
High-quality operations	works in accordance with quality objectives set for his/her work and changes own activities based on given feedback	acts in accordance with quality objectives set and assesses own activities in reaching them	acts in accordance with quality objectives set and develops own activities to reach them
	works in a service oriented manner.	works in a service oriented manner and promotes customer satisfaction.	works in a service oriented manner and promotes customer satisfaction.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
2. Mastering the work method, equipment and material	The student or candidate		
Technology and information technology	uses customary tools such as equipment and machinery, computer and software needed when setting up his/her business	uses tools such as equipment and machinery, computer and software needed when setting up his/her business	uses independently tools such as equipment and machinery, computer and software needed when setting up his/her business
	acts in accordance with the principles of information security.	acts in accordance with the principles of information security.	acts in accordance with the principles of information security.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
3. Underpinning knowledge	The student or candidate		
Assessment of productization opportunities	makes use, under guidance, of the business opportunities in productization	makes use of the business opportunities in productization	makes use of the business opportunities in productization
	searches information available in different networks under guidance	searches information available in different networks	makes use of information available in different networks
	identifies companies operating in the field and finds information on acting as an entrepreneur in the field under instructions	identifies companies operating in the field and finds information on acting as an entrepreneur in the field	identifies companies operating in the field and finds information on acting as an entrepreneur in the field
Looking into the business environment	follows, under instructions, development in the field from the point of view of starting business operations	follows development in the field from the point of view of starting business operations	follows development and outlook in the field from the point of view of starting business operations
	assesses his/her chances as an entrepreneur under guidance	assesses his/her chances as an entrepreneur	assesses independently his/her chances as an entrepreneur and sets personal development objectives
Choosing business idea	finds out about the business opportunities of the enterprise to be established under guidance	finds out about and reports on the business opportunities of the enterprise to be established	finds out about and reports on the business opportunities of the enterprise to be established
	acquires information from key authorities under instructions	acquires information from key authorities	acquires information from key authorities independently
	acquires under instructions information needed in planning business operations like how a product is made or service provided, sold and how accounting and finances are taken care of	acquires information needed in planning his/her business operations like how a product is made or service provided, sold and how accounting and finances are taken care of	makes use of information needed in planning his/her business operations like how a product is made or service provided, sold and how accounting and finances are taken care of

Drawing up a business plan	acquires under instructions information needed in planning company logistics	acquires information needed in planning company logistics	makes use of information needed in planning company logistics
	uses under instructions information needed in company risk analysis	uses information needed in company risk analysis	applies information needed in company risk analysis
	acquires under instructions information on support services available when setting up a business and running it, e.g. accounting office services	acquires information on support services available when setting up a business and running it, e.g. accounting office services	acquires information on support services available when setting up a business and running it, e.g. accounting office services
	acquires under instructions information on the entrepreneur's role in book-keeping and profit and loss analysis	acquires information on the entrepreneur's role in book-keeping and profit and loss analysis	acquires information on the entrepreneur's role in book-keeping and analysing the profit and loss account and balance sheet
	acquires under instructions information on key statutes related to products, services and contracts	acquires information on key legislation and statutes concerning products, services and contracts	applies key legislation and other statutes concerning products, services and contracts
Choosing form of enterprise, setting it up and closing it down	chooses under instructions form of enterprise and draws up the documents needed when setting up and closing down a business.	chooses form of enterprise and draws up the documents needed when setting up and closing down a business.	chooses form of enterprise and draws up the documents needed when setting up and closing down a business.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
4. Key competences for lifelong learning	Satisfactory 1	Good 2	Excellent 3
Learning and problem solving	<p>makes decisions under instructions</p> <p>assesses his/her own activities and progress made under guidance</p>	<p>makes choices and decisions</p> <p>assesses his/her own activities and progress made</p>	<p>makes valid proposals, choices and decisions to develop company operations</p> <p>assesses his/her own activities independently and progress in his/her work and company operations</p>
Interaction and cooperation	negotiates under guidance on cooperation with stakeholders	negotiates on cooperation with stakeholders	negotiates innovatively on cooperation with stakeholders
Vocational ethics	observes under instructions the financial, social and sustainable development values agreed when planning business operations	observes the financial, social and sustainable development values agreed when planning business operations	observes the financial, social and sustainable development values when planning business operations

Health, safety and ability to function	prepares under instructions plans on observance of occupational safety regulations in his/her business	prepares plans on observance of occupational safety regulations in his/her business	prepares independently plans on observance of occupational safety regulations in his/her business
	prepares under instructions plans on how to protect oneself against work and working environment related dangers.	prepares plans on how to protect oneself against dangers related to the work done and the working environment.	prepares spontaneously plans on how to prepare against dangers related to the work done and the working environment.

Ways of demonstrating vocational skills

The student or candidate demonstrates his/her vocational skills by planning the operations of his/her own enterprise and acting in cooperation with different stakeholders.

Skills demonstration is to cover completely

- ◆ mastering the work processes
- ◆ mastering the work method, equipment and material
- ◆ underpinning knowledge
- ◆ key competences for lifelong learning.

If the vocational skills required in the module cannot be shown in a skills demonstration or competence test in full, it is to be completed with such other assessment of competence as interviews, assignments and other reliable methods.

4.4.2 Modules from vocational qualifications (vocational upper secondary qualifications, further vocational qualifications and specialist vocational qualifications)

1. Modules from vocational upper secondary qualifications

Modules from vocational upper secondary qualifications can be included in the Vocational Qualification in Land Surveying in accordance with the student's or candidate's personal study plan.

In the competence-based qualification system, a certificate of a completed upper secondary module is always awarded by the committee in charge of the upper secondary qualification concerned. The qualification committee of Land Surveying accepts the module in question as part of the Vocational Qualification in Land Surveying based on the certificate.

2. Modules from further vocational qualifications

Modules from further vocational qualifications can be included in the Vocational Qualification in Land Surveying, in accordance with the student's or candidate's individual study plan.

The education provider must have a valid contract for arranging competence based qualification in question or the education provider can buy the competence tests from an education provider with a contract.

In vocational upper secondary education, a certificate of a completed further vocational qualification module is always awarded by the committee in charge of the further vocational qualification concerned and education provider accepts the module into student's qualification certificate.

In the competence-based qualification system, a certificate of a completed further vocational qualification module is always awarded by the Qualification Committee in charge of the further vocational qualification concerned and the Qualification Committee of Land Surveying accepts the module in question as part of the Vocational Qualification in Land Surveying based on the certificate.

3. Modules from specialist vocational qualifications

Modules from specialist vocational qualifications can be included in the Vocational Qualification in Land Surveying in accordance with the student's or candidate's personal study plan.

The education provider must have a valid contract for arranging competence based qualification in question or the education provider can buy the competence tests from an education provider with a contract.

In vocational upper secondary education, a certificate of a completed specialist vocational qualification module is always awarded by the Qualification Committee of the specialist vocational qualification concerned and education provider accepts the module into student's qualification certificate.

In the competence-based qualification system, a certificate of the completed module of specialist vocational qualification is always awarded by the committee in charge of the specialist vocational qualification concerned and the Qualification Committee of Land Surveying accepts the module of specialist vocational qualification in question as part of the Vocational Qualification in Land Surveying based on the certificate.

4.4.3 **Locally offered modules providing in-depth vocational competence in curriculum-based vocational education and training**

The education provider can provide in its approved curriculum the student with a chance to take individually vocational in-depth modules that correspond with local or regional working life skills requirements together with the student's need for deeper vocational skills. The modules must be named and their skills requirements, assessment criteria and ways of demonstrating vocational skills must be determined.

4.5 **FINAL PROJECT IN CURRICULUM-BASED VOCATIONAL EDUCATION AND TRAINING**

The student will plan and complete a Final Project that will demonstrate his/her competence. It can be, for example, a product, demonstration of skill, portfolio or performance. The student recognises his/her vocational key strengths and develops his/her creativity, innovativeness and promotes personal professional growth while completing the Final Project. He/she presents and assesses his/her Final Project as well as its planning process and realisation. With the Final Project, the student promotes his/her own employment. With the Final Project, the student promotes his/her own employment.

The education provider decides how the Final Project is carried out.

5

THE OBJECTIVES AND ASSESSMENT OF CORE SUBJECTS IN CURRICULUM-BASED VOCATIONAL EDUCATION AND TRAINING, 20 CREDITS

5.1 COMPULSORY MODULES

5.1.1 Mother tongue, 4 credits

5.1.1.1 MOTHER TONGUE, FINNISH

Objectives

Student

- ◆ communicates and acts in an interactive situation so that he/she can practice the profession, contribute to working life, be an active citizen and pursue further studies
- ◆ possesses the text skills needed in working life
- ◆ knows how to act in a multi-cultural and lingual environment
- ◆ understands the key concepts, essential contents and meaning of work specifications, plans and operator's manuals related to land surveying
- ◆ acquires information from different sources in different ways and conveys it in speech and in writing
- ◆ interprets different text types and fiction
- ◆ assesses his/her skills in mother tongue and develops them continuously
- ◆ knows how to act in different interactive situations in the land surveying sector
- ◆ masters different oral communication situations in the land surveying sector, e.g. presenting work and his/her final project
- ◆ knows how to draw up work plans and reports
- ◆ knows how to behave in a job hunting situation and how to draw up documents relevant to applying for a job
- ◆ makes use of professional journals of the land surveying sector and other media
- ◆ is critical in his/her use of media and knows the principles of the use of sources
- ◆ develops his/her communication and interaction skills and constructively contributes to the communication at work.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
	Student		
Acquiring information	acquires information essential to his/her vocational field from clear texts under instruction	acquires information related to his/her vocational field from different sources and uses reliable texts	acquires information from different sources and from even difficult texts and assesses their reliability
Comprehension of texts	understands the core meaning of the text from vocation point of view and knows how to combine its information to his/her own experiences and knowledge	understands the meaning and main contents of the text and also knows how to combine and compare its details to his/her own experiences and knowledge	understands both the meaning and message of the text as well as the meaning of the details, draws conclusions and evaluates the contents and the way of expression used in the text
Written communications	writes under instruction texts that are vital to vocational skills	writes texts that are vital to one's vocational skills	writes target oriented and processes his/her texts based his/her own evaluation and feedback
	knows the basics of spelling	uses fluent phrase and sentence structure and breaks text into paragraphs	masters the basic norms of language use and also improves the wording and layout of the written text
	compiles documents under guidance following a model	draws up appropriate documents	draws up appropriate documents and knows how to use document templates
	observes the requirements of the text type following a model	observes the requirements of the text and uses his/her knowledge of other text types	applies text type requirements in his/her own texts

Interaction and acting in working life language situations	acts appropriately in interactive situations, like when applying for a job	acts appropriately and politely in interactive situations, like when applying for a job	is customer-orientated, flexible and convincing in different interactive situations
	participates in conversation making statements	participates in a conversation and takes it forward towards the target	participates in the conversation in an active and constructive way and is partly responsible for the communication atmosphere
	validates his/her own opinions	gives a variety of grounds for his/her opinions and claims	gives a variety of grounds for his/her own views and also assesses the points made
	knows how to give a short presentation	creates contact to his/her listeners as he/she speaks and knows how to construct his/her statement in a way that it is easy to follow	can maintain interaction while speaking, knows how to exemplify his/her presentation and how to construct its contents logically
Media competence	knows the central media in the vocational field	uses key communication tools and assesses media texts	makes versatile use of communication tools and assesses media texts critically
	observes copyrights under guidance	sees copyrights as rights and obligations and observes them by citing his/her sources	knows how to cite the sources used and asks permission to use them if necessary
Knowledge of language and culture	recognizes the meaning of his/her own language and the meaning of cross-cultural communication	takes into account the cross-cultural communication in his/her own interactive situations	applies cross-cultural communications and his/her own cultural skills and acts liberally
	uses literature and other art forms to acquire experiences.	knows how to construe literature and other art forms.	knows how to analyze and interpret literature and other art forms.

Key competences for lifelong learning: 1. Learning and problem solving, 2. Interaction and cooperation, 7. Aesthetics, 8. Communications and media skills, 10. Technology and information technology, 11. Active citizenship and different cultures

In validation of prior learning general upper secondary school courses *Language, texts and interaction* (ÄIS1), *Structures and meanings of texts* (ÄIS2) *Means of influence* (ÄIS4) and one of the following *Literary texts* (ÄIS3), *Text, style and context* (ÄIS5), *Language, literature and identity* (ÄIS6) or *Oral communication* (ÄIS7) compensate for *Mother tongue, Finnish studies* in core subjects.

5.1.1.2 MOTHER TONGUE, SWEDISH

In education and training provided in Swedish, the objectives and assessment criteria for mother tongue studies are the same as when the studies are in Finnish.

5.1.1.3 MOTHER TONGUE, SAAMI

Objectives

Student

- ◆ acquires versatile experiences in Sami, both oral and literal
- ◆ understands his/her lingual roots and the development of his/her own lingual identity
- ◆ recognizes the meaning of language and culture to the work community
- ◆ familiarizes him/herself with Sami story telling tradition and its meaning to the Sami language and culture
- ◆ acquires information from different Sami language sources and also passes it on both in speech and in writing
- ◆ expands his/her experience and work environment to Sami speaking colleagues who live in Nordic countries and in Russia
- ◆ understands the meaning of multiculturalism and multilingualism and also develops his/her lingual and cultural tolerance
- ◆ draws up the most common written documents of his/her profession and community in Sami
- ◆ writes reports and job applications in Sami
- ◆ knows how to act when applying for a job and in other oral communication situations of the land surveying sector
- ◆ knows how to act in Sami in different interactive situations of the land surveying sector
- ◆ knows how to communicate and interact in Sami so that he/she can participate in working life, be an active citizen and pursue further studies
- ◆ evaluates his/her own mother tongue skills.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
	Student		
Knowledge of language and culture	knows the basic features of Saami culture	knows the background of national Saami language and culture formation	strengthens and develops his/her own lingual identity
	uses Saami story telling tradition under instruction	know Saami culture and familiarises himself/herself with its unique character, e.g. story telling tradition	uses Saami story telling tradition and knows the history of Saami people through it
	recognizes the variety and significance of languages and cultures	takes into account the meaning of different cultures and languages in communication situations in his/activities	recognizes the common roots of Saami and Finnish languages
Acquiring information and media competence	makes use of professional papers and other media in the field under instruction	uses the key communication tools in the field	acquires and analyses enriching experiences by making use of the various communications tools
	knows the key media used in the vocational field	recognizes the different influences of the media and evaluates them	makes versatile use of the key media contents in the field and interprets them objectively
Understanding texts	understands the core of the Saami language text and knows how to combine its information with his/her own experiences and knowledge	understands the meaning of the text and its core content in Saami language and knows how to combine and compare its details to his/her own experiences and knowledge	understands the meaning of the text as well as the meaning of its message, draws conclusions and evaluates the content and the way the text is written

Written communication	knows the basics of Saami language spelling	uses fluent phrase and sentence structure and breaks the text into paragraphs	plans his/her writing according to the objective and also improves his/her text according based on his/her own assessment as well as that of the others
	writes in full sentences and uses information technology	compiles a text that is valid in contents and layout and matches the title and the meaning of the text	compiles a text, that is both diverse in contents and fluent and coherent in structure
		communicates in writing according to the situation	compiles written documents for use in the vocational field as well as the community
Interaction and acting in working life language situations	acts correctly in interactive situations	acts correctly and politely in interactive situations	acts flexibly and convincingly in interactive situations
	participates in conversation making statements	participates in the conversation and directs the it towards desired end result	participates in the conversation in an active and constructive way
	gives a short presentation.	creates contact with his/her listeners when speaking and knows how to construct his/her speech in a way that it is easy to follow.	maintains interaction while speaking, knows how to exemplify his/her presentation and how to construct its contents logically.

Key competences for lifelong learning: 2. Interaction and cooperation, 8. Communications and media skills, 11. Active citizenship and different cultures.

In validation of prior learning general upper secondary school courses *Language, texts and interaction* (ÄIS1), *Structures and meanings of texts* (ÄIS2) *Means of influence* (ÄIS4) and one of the following *Literary texts* (ÄIS3), *Text, style and context* (ÄIS5), *Language, literature and identity* (ÄIS6) or *Oral communication* (ÄIS7) compensate for *Mother tongue, Saami studies* in core subjects.

5.1.1.4 MOTHER TONGUE, SIGN LANGUAGE

Objectives

Student

- ◆ knows how to practise his/her skills related to the land surveying sector using sign language
- ◆ appreciates the sign language skills as a part of his/her identity
- ◆ acts in sign language in interactive situations that require both spoken and written language
- ◆ knows how to communicate and interact in sign language in working life, as an active citizen and a further education student
- ◆ knows how to communicate in a way that makes social interaction, learning and working life success possible.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
	Student		
Knowledge of language and culture	understands the stature of sign language community in multilingual Finnish society	compares the communication used by signed and spoken language cultures	knows the background of the sign language community and knows how to represent the minority culture in the prevailing multilingual culture
	recognizes the core characteristics of signed and spoken language	makes use of the characteristics of signed and spoken languages	strengthens and develops his/her own lingual identity and the vocational field signs

Knowledge of sign language linguistics	knows the core structure of the sign language	lists basic features in his/her mother tongue and analyses his/her own language use in relation to others	masters the basic structure of sign language
	uses sign language dictionaries under instruction	uses sign language dictionaries independently	searches for diverse information in sign language dictionaries and textbooks
	recognizes the different forms of sign language (general and spoken language situations)	ponders the objective contents of sign language texts	knows the linguistic characteristics of sign language
Interaction and acting in working life language situations	uses vocation related signs under instruction	knows general set of signs and vocation related sign set	knows vocation related sign set well and the linguistic features related to professional identity
	acts correctly in interactive situations	participates in the conversation and directs the it towards desired end result	uses sign language that is structurally fluent and rich in expression
	reads signed (videoed) texts	explains professional things in sign language in presentations and in instructions prepared for others	reads texts written in sign language objectively and utilises the newly acquired information
	produces and understands sign language	produces short presentations in sign language and uses sign language in conversations	maintains interaction while speaking and produces presentations in sign language, in which he/she makes use of the ways of expression and presentation ways used in the sign language culture
	gives a short presentation in sign language	acts in different environments with people, who use sign language and with those who can hear	
Use of learning skills and means of help	knows how to use a sign language interpreter in one-on-one conversations	knows how and when to use an interpreter	knows how to use a sign language interpreter fluently in various situations
	uses the professional literature and work manuals with the help of sign language under instruction	uses information search fluently and searches information independently from different sources	interprets the information gathered from different points of view and forwards it using sign language
	uses memory techniques in work assignments under instruction	uses different learning strategies in sign language studies	utilises different learning strategies in his/her sign language studies
	masters the basics of communication technology and information search skills.	produces simple presentations with communication tools.	uses communication tools variedly when producing presentations in sign language.

Key competences for lifelong learning: 1. Learning and problem solving, 2. Interaction and cooperation, 8. Communication and media skills.

In validation of prior learning general upper secondary school courses *Language, texts and interaction* (ÄIV1), *Structures and meanings of texts* (ÄIV2), *Texts and influence* (ÄIV4), and one of the following *Devices and influence of literature* (ÄIV3), *Text, style and context* (ÄIV5), *Language, literature and identity* (ÄIV6) or *Advanced Oral communication* (ÄIV7) compensate for *Mother tongue, Sign language* studies in core subjects.

5.1.1.5 MOTHER TONGUE, ONE'S OWN MOTHER TONGUE FOR FOREIGN LANGUAGE USERS

Objectives

Student

- ◆ reads, writes and expresses himself/herself in his/her mother tongue
- ◆ understands the linguistic roots and the development of his/her own identity
- ◆ uses his/her own mother tongue and Finnish or Swedish in different connections
- ◆ acquires information in various ways from different sources and also forwards it orally and in writing
- ◆ knows how to communicate and to interact so that he/she can participate in working life, be an active citizen and pursue further studies
- ◆ knows how to act in a multicultural society and in professional situations appreciating his/her own language and Finnish traditions.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
	Student		
Knowledge of language and culture	perceives the writing methods of his/her own language	reads and writes short texts in his/her own language	reads variable texts in his/her own language and writes text for different purposes
	knows how to tell about main characteristics of his/her language environment and culture	pursues practical studies into the literature his/her own language and cultural circle	knows the structure and grammar of his/her own mother tongue
	can name the cultural roots of his/her language	knows the cultural roots of his/her own language and its family of languages	achieves strong cultural identity and preserves cultural bindings in the environment he/she has grown up in
		knows the ways of use of his/her mother tongue and its varieties in his/her region	is interested in his/her mother tongue and language background and is motivated to develop his/her mother tongue skills
Acquiring information and media skills	knows the most important communication channels of his/her own language	acquires information in his/her own mother tongue utilising different communication tools (for example dictionaries, data networks)	acquires information in his/her own mother tongue utilising different communication tools and compares different sources objectively
Interaction and acting in working life language situations	knows how to give a short presentation in his/her mother tongue	knows how to communicate coherently in his/her own mother tongue in professional matters	compiles different texts observing the communication traditions of his/her own culture and uses oral skills actively
	knows the forms of oral expressions in his/her own and in Finnish culture	compares the use of his/her own language and Finnish	compares the communication of people who speak the same language and Finnish speaking people
	expresses himself/herself orally in the most common language situations in his/her cultural circle.	uses the key terms of his/her own vocational field and participates in conversations in his/her own language region	knows how to act in a similar profession in his/her own culture
		understands the meaning of bilingualism to his/her own work.	expands his/her vocational vocabulary and develops his/her vocational skills in his/her own language if needed.

Key competences for lifelong learning: 2. Interaction and cooperation, 8. Communication and media skills, 10. Technology and information technology, 11. Active citizenship and different cultures

In validation of prior learning general upper secondary school courses One's own mother tongue and its use *Language, texts and interaction* (ÄIM1) and *Culture in the language area* (ÄIM3), *Communication and society* (ÄIM4), *World of information* (ÄIM6) compensate for *Mother tongue, one's own mother tongue for foreign language students* studies in core subjects.

5.1.1.6 MOTHER TONGUE, FINNISH AS A SECOND LANGUAGE

Objectives

Student

- ♦ possesses such communication and interactive skills that he/she has adequate recourses for working life, active citizenship and further studies
- ♦ understands the key contents of oral communication in Finnish, follows the topic studied easily and is able to participate in the work
- ♦ understands the key contents of written study material and is able to use it to make progress his/her studies
- ♦ gets inspiration and experiences when studying literature and different text types in Finnish and if possible in his/her mother tongue
- ♦ writes work plans and reports
- ♦ masters the key structures of Finnish language as well as professional glossary and sayings in the land surveying sector
- ♦ knows how to act in his/her profession observing the main procedures of Finnish working life and society
- ♦ searches information from work specifications, operator's manuals and other sources, uses dictionaries and makes notes independently and also uses material from literal and network sources to develop his/her language skills and further his/her studies.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
	Student		
Acquiring information	acquires information essential to his/her vocational field from clear texts under instruction	acquires information related to his/her vocational field from different sources and uses reliable texts	acquires information from different sources, even difficult texts, and assesses their reliability
Comprehension of texts	understands short practical texts, key words and important details and also texts, whose contents are professionally relevant	understands professional texts on his/her own field or on general topics and also texts that need little more inference, knows how to search and combine information from several different texts a few pages long	also understands texts independently on abstract topics that can be related to his/her own field of work and occupational safety, quickly perceives the contents and importance of the text and applies it to different assignments
Written communication	writes short structured text on familiar topics in most common written communication contexts and also possesses the vocabulary and structures needed to create general and professional texts	writes texts on familiar abstract as well as vocational field related topics, uses vocabulary and sentence structures that are needed for variable writing and also writes understandable and practically flawless language	writes fluent and detailed texts also on abstract topics and work assignments, combines or summarises information from different sources to his/her text, commands a vast vocabulary and demanding sentence structures and has the language skills to write fluent structured text
Interaction and acting in working life language situations	understands a speech on studying or his/her vocational field and a conversation containing general vocabulary	understands conversations that cover general topics and factual matters or are related to his/her vocational field and masters the vocabulary	understands concrete and abstract spoken language also when it is related to his/her vocational field, recognises different styles of speech and knows how to summarize key elements and important details from what he/she has heard
	speaks about familiar things and manages unofficial conversations and also communicates in different vocational situations	speaks about ordinary concrete topics and explains matters related to his/her work and also communicates using an vast vocabulary , variable structures and complicated sentences	communicates clearly in situations related to his/her experience and vocational field as well as in most practical and social situations and formal conversations, uses language structures and a fairly extensive vocabulary

Knowledge of language and culture	knows about Finnish society and culture and understands the importance of cross-cultural communication	understands the norms of Finnish society and the procedures of working life and also takes into account the cross-cultural communication in his/her interaction	applies the information on Finnish social norms and working life procedures and also applies cross-cultural communication and his/her own cultural skills
Language studies	knows different ways of studying languages and the principles of using dictionaries and other information sources.	applies different ways of studying languages and uses dictionaries and other information sources to facilitate understanding.	applies different language studying strategies in his/her studies and also uses dictionaries and other information sources to complete assignments.

Key competences for lifelong learning: 1. Learning and problem solving, 2. Interaction and cooperation, 8. Communications and media skills, 11. Active citizenship and different cultures.

When defining the objectives of Finnish studies, the description scale of the common European framework of reference for languages: learning, teaching and assessment is applied, level B2.1 of which (basic level of independent language skills) describes in the main a student's excellent skills at the end of the studies. (Common European Framework of Reference for Languages: Learning, Teaching, Assessment. Published by arrangement with the Council of Europe 2001. European framework. Common European Framework of Reference for Languages: Learning, Teaching, Assessment. Translated into Finnish by Irma Huttunen and Hanna Jaakkola 2003.)

In validation of prior learning general upper secondary school courses *Mastering the basics* (S21), *Putting language into action* (S22), *Advanced textual skills* (S24) and *Getting to know Finnish culture* (S25) compensate for *Mother tongue, Finnish as a second language* in core subjects.

5.1.1.7 MOTHER TONGUE, SWEDISH AS A SECOND LANGUAGE

In education and training provided in Swedish the objectives and assessment criteria for *Mother tongue, Swedish as a second language* are the same as when the studies are in Finnish for *Mother tongue, Finnish as a second language*.

5.1.1.8 MOTHER TONGUE, FINNISH OR SWEDISH FOR SIGN LANGUAGE USERS

Objectives

Student

- ◆ acquires and passes on information according to his/her individual starting points and communicates in Finnish or Swedish in different situations
- ◆ is able to consider the connection with working life requirements and the culture and history of the deaf in the texts used
- ◆ produces work plans and reports
- ◆ uses professional Finnish or Swedish typical of the land survey sector when interacting with those who can hear
- ◆ compares the forms of expression and grammar between sign language and spoken or written language
- ◆ knows how to work actively in communities and in professional life where both Finnish or Swedish and sign language are used.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
	Student		
Acquiring information	acquires information in Finnish or Swedish under guidance	uses Finnish or Swedish in information gathering in his/her professional field	acquires information independently from written and digital sources and assesses them objectively
Comprehension of text	understands the key contents of a general or professional text	understands the contents and style of a general text and compares literary, general and colloquial texts	understands without difficulty both general and professionally oriented written texts

Written communication	writes about general topics and uses understandable language	compiles short written abstract from a general text	writes fluently understandable, articulate and precise general language and also masters spelling and punctuation rules
	draws up appropriate job applications under instruction and following an example	draws up appropriate job applications	draws up appropriate job applications identifying the applicant's skills
	writes general language so he/she copes with familiar communication situations	makes an understandable input in written communication	conveys and explains written texts in sign language comments on texts and information sources objectively
Interaction and acting in working life language situations	reads professional, cultural and private life text examples	reacts appropriately to different messages and asks for more information when needed	conveys orders and messages and is able to complete assignments in Finnish or Swedish
	acts cooperatively at work using helpful tools if needed	works cooperatively as a member of a team and knows how to convey messages	works in a team and communicates professionally and responsibly with people who can hear as well as the deaf
Media skills	recognizes and observes the changing media environment	observes and assesses objectively the contents and ways of expression used in the media	uses glossaries and electronic databases flexibly to understand text
Knowing the grammar features of sign language and spoken language	knows the key differences of sign language and written language.	compares the typical spoken language structures to those in sign language.	knows the principles and form of spoken Finnish or Swedish and compares them to the ones in sign language.

Key competences for lifelong learning: 1. Learning and problem solving, 2. Interaction and cooperation, 8. Communication and media skills.

In validation of prior learning general upper secondary school courses *Language, texts and interaction* (V21), *Text structures and meanings* (V22), *Texts and making an impact* (V24) and one of the following: *Means and interpretation of literature* (V23), *Text, style and context* (V25), *Language, literature and identity* (V26) or *In-depth course in oral communication* compensate for *Mother tongue, Finnish for sign language users* studies in core subjects.

5.1.1.9 MOTHER TONGUE, ROMANY

Objectives

Student

- ◆ uses Romany language and cultural heritage as a tool for interaction and thinking in Romany community and in professional connections
- ◆ acquires information from different Romany language sources
- ◆ masters such communication and interaction skills that he/she can participate in working life, act as an active citizen and apply for further studies
- ◆ acts in different interactive situations in the land surveying sector in Romany
- ◆ masters spoken communication situations in the land surveying sector
- ◆ masters the key structures of Romany as well as the professional vocabulary and expressions in their vocational field.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
	Student		
Knowledge of language and culture	knows the key features of Romany culture and analyses his/her own language use compared to others	knows the background and culture of the national Romany language and also strengthens and develops his/her own lingual identity	understands for his/her own part the meaning of lingual identity and acts according to the Romany culture
Acquiring information	searches for information from clear Romany texts under guidance	searches for many kinds of information from clear Romany texts	masters the sources and materials that exist in Romany language and uses them in his/her writing
Comprehension of texts	understands the essence of a Romany text and knows how to combine its information with his/her own experiences and knowledge	understands the main idea of a Romany factual text and writes different kinds of texts in Romany	understands both the meaning and message of the text, draws conclusions and assesses the content and the way of expression

Interaction and acting in working life language situations	participates understandably in written and oral communication at work	communicates in Romany orally and literally according to the situation	communicates in Romany in speech and in writing according to the situation and develops his/her skills based on feedback
		reacts appropriately to different messages and asks for more information when needed	manages him-/herself naturally in different situations in Romany
Knowledge of Romany linguistics	has a sufficient vocabulary on familiar things in Romany.	is quite confident in his/her use of language forms in both oral and written communication.	uses fluent Romany clause and sentence structure.

Key competences for lifelong learning: 1. Learning and problem solving, 2. Interaction and cooperation, 11. Active citizenship and different cultures.

In validation of prior learning general upper secondary school courses *Strengthening the linguistic foundation* (ÄIR1) and *Expanding language skills beyond family and friends* (ÄIR2), *The Romany language and culture in modern society* (ÄIR6) and one of the following: *Oral and written Romany traditions* (ÄIR3), *History and distribution of the Romany language and culture* (ÄIR4), *Romany literature and other arts* (ÄIR5) or *Romany discourse skills and culture* compensate for *Mother tongue, Romany studies* in core subjects.

5.1.2 Second national language

5.1.2.1 SECOND NATIONAL LANGUAGE, SWEDISH, 1 CREDIT

Objectives

Student

- ◆ manages routine work assignments of the land survey field and everyday situations in the second national language
- ◆ understands the significance of the both national languages and cultures in a multi-cultural Finland.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
	Student		
Acquiring information	knows the basic principles of using dictionaries and other information sources	uses dictionaries and also other, for example electronic information sources	uses dictionaries, electronic and other sources to acquire further information from simple foreign language instructions in his/her own vocational field
Comprehension of text and written communication	understands the contents of short and simple written messages related to his/her own work and work safety, using helpful tools	writes such short work related texts as work and safety instructions following an example	writes short work related notes, instructions or order forms
Interaction and acting in working life language situations	tells about himself/herself in few words or about familiar things in his/her work	manages routine day-to-day conversation situations, if the other person talks slowly and uses simple, basic vocabulary	acts in common communication situations both face-to-face and on the phone and asks for elaboration or clarification if needed
Significance of language and culture	is aware of the significance of Swedish language and culture	understands the meaning of Swedish language and culture when meeting people from the Nordic countries	understands the position of Swedish language and culture in multi-cultural Finland
Language studies	recognizes his/her own learning strategies.	recognizes the strengths and weaknesses of his/her own learning strategies.	tries new strategies and ways of learning.

Key competences for lifelong learning: 1. Learning and problem solving, 2. Interaction and cooperation, 8. Communications and media skills, 11. Active citizenship and different cultures.

Grade Good 2 equals listening and text comprehension language skill level A1.3–A2.1 and speaking and writing skill level A1.3–A2.1 on the description scale of the common European framework of reference for languages: learning, teaching and assessment (Common European Framework of Reference for Languages: Learning, Teaching, Assessment. Published by arrangement with the Council of Europe 2001. European framework. Common European Framework of Reference for Languages: Learning, Teaching, Assessment. Translated into Finnish by Irma Hutunen and Hanna Jaakkola 2003.)

In validation of prior learning general upper secondary school courses *Everyday living in the Nordic countries* (RUA1) or *School and leisure* (RUB1) compensate for *Second national language, Swedish* studies in core subjects.

5.1.2.2 SECOND NATIONAL LANGUAGE, FINNISH, 2 CREDITS

Objectives

The student possesses such communication and interaction skills that he/she can manage work assignments in their vocational field in Finnish and understands the significance of Finnish in his/her work and private life.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
	Student		
Acquiring information	knows the basic principles of using dictionaries and other information sources	uses professional dictionaries and Finnish language databases	uses dictionaries, manuals, reference books and Finnish websites to gather information
Comprehension of text and written communication	understands the contents of simple work or everyday life related instructions or notices in Finnish	understands the contents of work or everyday life related instructions or notices in Finnish	reads easily and understands various professional texts and manuals in Finnish and follows professionally relevant events from Finnish professional publications and social events in Finnish media
	writes short notices, fills in forms and writes short reviews in Finnish using tools	writes notices, letters and even longer reviews or minutes in Finnish, using tools if needed	fills in forms, writes orders, letters and reports and also answers to inquiries in writing in Finnish

Interaction and acting in working life language situations	understands simple, work or everyday life related instructions and orders and is able to acceptably address a customer or co-worker in Finnish and understand questions made to him/her	understands clear instructions and spoken language in normal tempo at work or on the phone, knows how to interact and understand a customer or a co-worker and also follows professional and social events in the media	understands various instructions and professionally related conversation even when spoken in fast tempo, interacts with Finnish speaking customers naturally and understands their ways and wishes
	attends to Finnish speaking customers satisfactorily, copes with everyday situations and handles the most important work assignments in Finnish	attends to Finnish speaking customers well, answers questions and handles work assignments on the phone and also participates in routine Finnish language conversations at work	discusses his/her work assignments in Finnish without difficulty, knows how to describe processes and details and starts and carries on conversations in Finnish using variable speaking tempo
Significance of language and culture	understands the significance of mastering Finnish in everyday interaction as well as in the Finnish work community	works well in a Finnish work community and strives to improve his/her professional language skills	plays an active role in the Finnish work community and shows interest in the Finnish culture
Language studies	recognizes his/her own learning strategy.	recognizes the strengths and weaknesses of his/her own learning strategy.	tries new strategies and ways of learning.

Key competences for lifelong learning: 1. Learning and problem solving, 2. Interaction and cooperation, 8. Communications and media skills, 11. Active citizenship and different cultures.

Grade Good 2 equals listening and text comprehension language skill level B1.2 and speaking and writing skill level B1.1 on the description scale of the common European framework of reference for languages: learning, teaching and assessment (Common European Framework of Reference for Languages: Learning, Teaching, Assessment. Published by arrangement with the Council of Europe 2001. European framework. Translated into Finnish by Irma Huttunen and Hanna Jaakkola 2003.)

In validation of prior learning general upper secondary school courses *Everyday life and leisure* (FINA1) and one of the following: *Nature and the environment* (FINA2) *Commerce, technology and communications* (FINA3), *Society and the media* (FINA4), *Education, occupational and economic life* (FINA5) or *Finnish culture and literature* (FINA6) compensate for *Second national language, Finnish studies* in core subjects.

5.1.3 Foreign language

5.1.3.1 FOREIGN LANGUAGE, A LANGUAGE, 2 CREDITS

Objectives

Student

- ◆ communicates and acts in interactive situations in a way that he/she can work in his/her profession, contribute to working life, be an active citizen and pursue further studies
- ◆ possesses the language skills required in tasks of the land survey field
- ◆ knows how to act in a multicultural and multilingual environment.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
	Student		
Acquiring information	searches for information in work related materials and instructions under instruction and using dictionaries	searches for professionally relevant information using dictionaries and also other, for example electronic information sources	searches for professionally relevant information in various ways, applies his/her knowledge and skills and justifies his/her decisions
Comprehension of text and written communication	understands short and simple written messages that are related to his/her vocational field	understands written instructions that are related to his/her work, products and processes using tools, asks detailed questions and knows how to act according to the answers given	understands written instructions that are related to his/her work, products and processes and the feedback given
	writes simple and short work related texts under instruction	writes simple and short work related texts following an example	writes usual personal messages and short texts and fills in simple work related documents

Interaction and acting in working life language situations	understands short and simple oral messages related to his/her vocational field and knows how to act according to them	understands the most common oral instructions related to his/her work, products and processes and knows how to act according to them	understands the main idea of ordinary speech in normal tempo and acts accordingly
	tells briefly about himself/herself and about tasks in his/her vocational field by answering the questions asked in foreseeable and familiar work situations	tells about himself/herself and his/her duties in a way that he/she is understood and participates in the conversation if the partner talks slowly and uses simple structures	tells in familiar situations about his/her workplace and duties and about related norms and customs, finds out about the similar things in other countries and acquires further instructions on the duties if needed
Knowledge of language and culture	is aware of the significance of the language studied as well as the culture it represents	understands the significance of the language studied as well as the culture it represents	applies his/her knowledge and skills of the foreign language and culture
Language studies	recognizes his/her own learning strategies.	assesses the strengths and weaknesses of his/her own learning strategies.	strengthens his/her learning by trying new strategies and ways of learning.

Key competences for lifelong learning: 1. Learning and problem solving, 2. Interaction and cooperation, 8. Communications and media skills, 11. Active citizenship and different cultures.

Grade Good 2 equals listening and text comprehension language skill level A2.2 and speaking and writing skill level A2.1 on the description scale of the common European framework of reference for languages: learning, teaching and assessment (Common European Framework of Reference for Languages: Learning, Teaching, Assessment. Published by arrangement with the Council of Europe 2001. European framework. Translated into Finnish by Irma Huttunen and Hanna Jaakkola 2003.)

In validation of prior learning general upper secondary school A Language courses *Young people and their world* and *Study and work* compensate for *Foreign language, A language studies* in core subjects.

5.1.3.2 FOREIGN LANGUAGE, B LANGUAGE, 2 CREDITS

Objectives

Student

- ◆ copes with ordinary everyday service situations
- ◆ knows how to act in foreseeable and recurring service situations in the land survey sector using the foreign language

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training the targets of assessment also constitute the core contents of the qualification module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
	Student		
Acquiring information	knows the principles of using dictionaries and other information sources	uses dictionaries and other information sources, also electronic, to help him/her to understand	uses dictionaries and other information sources, also electronic, to help him/her produce texts
Understanding texts and written communication	writes under guidance and using helpful tools simple texts, e. g. instructions, adverts or lists from familiar topics	writes texts that consist of short and, using helpful tools, simple sayings and sentences, such as instructions, adverts or lists that are related to well known topics	writes, among other things, texts that consist of short and, using helpful tools, simple sayings and sentences, such as instructions, adverts or lists that are related to familiar topics in both private- and in working life
Interaction and functioning in language situations in working life	can tell about himself/herself and his/her work in few words, e. g. recognizes tools, titles and assignments	asks simple questions and answers accordingly when the discussion is about immediate, concrete environment and himself/herself, when the conversation partner talks slowly and clearly	asks simple questions and answers them when the discussion is about immediate, concrete environment and himself/herself, when the conversation partner talks clearly and also asks for clarification – if needed
			communicates orally e. g. when introducing himself/herself in everyday or working life familiar situations

Knowledge of language and culture	recognizes and differs new sounds and signs	writes new signs and produces new sounds	advances the learning of the new language by comparing it to other languages he/she already masters
Language studies	recognizes his/her own study strategies.	evaluates the strengths and weaknesses of his/her own study strategies.	strengthens his/her learning by trying out new strategies and ways of learning.

Key competences for lifelong learning: 1. Learning and problem solving, 2. Interaction and cooperation.

Grade Good 2 equals listening and text comprehension language skill level A1.1 and speaking and writing skill level A1.1 on the description scale of the common European framework of reference for languages: learning, teaching and assessment (Common European Framework of Reference for Languages: Learning, Teaching, Assessment. Published by arrangement with the Council of Europe 2001. European framework. Translated into Finnish by Irma Huttunen and Hanna Jaakkola 2003.)

In validation of prior learning general upper secondary school B1 courses *Young people and their world* and *Study, work and society* compensate for *Foreign language, B language studies* in core subjects.

5.1.4 Mathematics, 3 credits

Objectives

Student

- ◆ masters basic mathematics, percentage calculations and unit conversions and uses them in calculations relevant to the professions in the land surveying sector
- ◆ counts areas and volumes and also applies geometry to the extent required in the professional tasks
- ◆ uses appropriate mathematical solutions to solve problems related to professional tasks
- ◆ expresses dependencies of variables with mathematical expressions
- ◆ creates and forms equations, expressions, charts and drawings needed for professional tasks and solves work-related mathematical assignments using equations, deduction and graphs and assesses the correctness of his/her results
- ◆ uses a calculator, computer and other mathematical tools to help solve problems when needed.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
	Student		
Basic mathematical calculations, percentage calculations and unit variations as well as mathematical key concepts and ways of expression	completes routine work-related calculations and knows mathematical key concepts and ways of expression	completes profession related calculations proficiently and uses, to some extent, mathematical concepts and ways of expression in his/her presentation	applies calculations that are needed in his/her profession and assesses the accuracy of the results and masters the mathematical concepts and ways of presentation that are needed in his/her profession
Mathematical procedures, problem solving and result assessment	solves basic, work-related mathematical problems, either by deduction, graphic expression or calculating and also knows how to assess the scale of the results	solves profession related problems using mathematical procedures and assesses the correctness of the results	applies mathematical procedures in solving and forming profession related problems and assesses the reliability and precision of the methods
Using a calculator and computer	uses a calculator and computer to help solve work-related mathematical basic assignments	uses a calculator and computer efficiently to help solve work-related mathematical problems	uses a calculator and computer innovatively to help solve profession related mathematical problems
Processing, analyzing and producing numeric data	uses statistics, charts and graphical presentations as information sources	uses statistics, charts and graphical presentations to solve profession related problems	applies statistics, charts and graphical presentations to solve profession related problems and also presents the mathematical results as statistics, charts and graphic presentations
	calculates under instruction mathematical averages of material presented.	calculates essential statistical key figures.	calculates or defines statistical key figures on the material given.

Key competences for lifelong learning: 1. Learning and problem solving, 9. Mathematics and natural sciences.

In validation of prior learning general upper secondary school courses *Expressions and equations* (MAB1) and *Geometry* (MAB2) or *Functions and equations* (MAA1) compensate for *Mathematics* studies in core subjects.

5.1.5 Physics and chemistry, 2 credits

Objectives

Student

- ◆ applies the most common physical and chemical phenomena, concepts and laws relevant to the land survey field
- ◆ knows how to take into account the laws of nature and act observing them to save the environment and energy
- ◆ addresses basic environmental problems from a scientific point of view
- ◆ applies the key laws and concepts of physics relevant to the land surveying sector
- ◆ knows the key concepts and phenomena for his/her profession in mechanics, thermal physics and electricity so that they can use the equipment and systems needed in the land surveying sector safely and economically and work ergonomically
- ◆ considers environmentally and professionally relevant central chemical phenomena in their work, which requires him/her to know the chemical properties of the most common elements and inorganic and organic compounds
- ◆ stores, uses correctly and disposes appropriately of the substances needed in the land surveying sector as well as calculates contents and concentrations
- ◆ is able to interpret factors affecting health and safety from product markings, e.g. fuel oil, lubricants, disinfectants and plant protection and preserving agents and other chemicals as well as to consider the special properties of substances so that he/she does not endanger his/her own safety or that of the environment
- ◆ observes and measures physical and chemical phenomena relevant to his/her professional field
- ◆ gathers, processes and analyses the observations and measurements made.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
	Student		
Knowing the laws of thermal physics, mechanics and electricity and taking them into consideration at work	knows the laws of physics well enough to take into account the relevant related phenomena but needs guidance at times	takes into account the laws of physics in his/her work assignments	knows how to apply the laws of physics in his/her work independently
Knowing chemical substances and compounds as well as their properties and taking them into consideration at work	handles, stores and disposes correctly of the chemicals he/she uses at work and takes into account the properties and environmental risks of different substances but needs guidance at times	handles, stores and disposes correctly of the chemicals he/she uses at work and takes into account the properties and environmental risks of different substances in familiar work situations	handles, stores and disposes correctly of the chemicals he/she uses at work and takes into account the properties and environmental risks of different substances in changing work situations
	interprets the most common product markings but needs guidance at times	interprets the most common product markings	interprets independently different product markings in the field
	calculates concentrations and substance quantities under guidance as well as searches for information in chemical safety data sheets under instruction	calculates concentrations and substance quantities as well as searches for information in material safety data sheets	calculates concentrations and substance quantities flexibly in different work situations using the information he/she has obtained from different sources
Observation and measurement	carries out measurements using the most common methods and equipment in a guided work situation	carries out measurements using the most common methods and equipment independently and knows how to assess the reliability of the results	uses the most suitable measurement methods and equipment professionally, takes measurements in an organized and cautious way and knows how to assess the precision and reliability of the observations and measurements
	documents the measurements and observations made according to instructions and presents them as tables and graphs and calculates results if needed but needs guidance in certain areas	knows how to analyze the measurements and observations as well as to draw conclusions on the results	knows how to report and present results as well as how to assess the precision and reliability of the results and conclusions
Working safely and ergonomically	works according to safety instructions but needs guidance for ergonomic working.	works ergonomically and observing safety instructions.	works ergonomically and observing safety instructions and takes into account the risk factors in the working environment independently.

Key competences for lifelong learning: 1. Learning and problem solving, 4. Health, safety and ability to function, 6. Sustainable development 9. Mathematics and natural sciences, 10. Technology and information technology.

In validation of prior learning general upper secondary school courses *Physics as a natural science* (FY1) and *The chemistry of man and of the living environment* (KE1) compensate for *Physics and chemistry* studies in core subjects.

5.1.6 Social, business and labour-market subjects, 1 credit

Objectives

Student

- ◆ contributes to the management of common affairs at school and in the on-the-job training place
- ◆ assesses his/her abilities to be an active citizen and consumer
- ◆ knows how to use the services society offers
- ◆ draws up a plan on how to take care of his/her own finances
- ◆ assesses the significance of entrepreneurship to Finnish national economy
- ◆ searches for information on workplaces in his/her vocational field as well as information on the European Union and its citizens.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
	Student		
Participation at school and in the on-the-job training organization	participates in the management of common affairs under guidance	participates in the management of common affairs as agreed and knows the social decision making process	participates in the management of common affairs independently and knows the social decision making process

Assessing the opportunities to act	assesses his/her abilities to act as a citizen and consumer under guidance	assesses his/her opportunities to function as a citizen and consumer	assesses his/her opportunities to function as an active citizen and as a consumer
	knows the rights, obligations and ways to influence as a student	knows the rights, privileges, obligations and key ways to influence as a student and citizen	knows the rights, privileges, obligations and key democratic ways to influence as a student and citizen
	searches for information on the basic rights and responsibilities of a consumer	knows the basic rights and responsibilities of a consumer	knows the basic rights and responsibilities of a consumer
Using the services of society	uses the services a student needs and understands the citizens' role in financing them	uses the services society offers and understands the citizens' role in financing them	uses the services society offers independently and understands the citizens' role in financing them
Taking care of one's own finances	draws up a plan for his/her expenditure and finances under guidance	draws up a plan for his/her expenditure and finances	draws up a plan for his/her expenditure and finances
	searches for information on financing options and their costs under guidance	searches for information on financing options and their costs	searches for information about financing sources and compares their costs
Assessing the key factors affecting national economy	assesses the key impact of entrepreneurship on employment	assesses the impact of entrepreneurship and business operations on employment	assesses the impact of entrepreneurship and business operations on employment independently
Searching for information vacancies in the vocational field and the European Union	searches for information on vacancies in the vocational field locally	searches for information on vacancies in the vocational field regionally and nationally	searches for information on vacancies in the vocational field regionally, nationally and in other EU countries
	searches for information on EU citizens under guidance.	searches for information on the EU and its citizens.	searches for comparative information on the EU and its citizens.

Key competences for lifelong learning: 2. Interaction and cooperation, 5. Initiative and entrepreneurship, 11. Active citizenship and different cultures.

In validation of prior learning general upper secondary school courses *Politics and society* (YH1) and *Economics* (YH2) compensate for *Social, business and labour-market* studies in core subjects.

5.1.7 Physical education, 1 credit

Objectives

Student

- ◆ promotes a healthy and active lifestyle through physical education while understanding the benefits of physical education to one's ability to function and work
- ◆ gets familiar with physical exercise that benefits health, mental vitality and endurance variedly
- ◆ keeps up his/her ability to function through exercise
- ◆ exercises and acts responsibly both alone and in group
- ◆ promotes the functioning and safety of the group with his/her actions.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
	Student		
Supporting and strengthening physical ability to function	uses the basic skills needed for physical exercise	uses the basic skills needed for physical exercise variedly	uses the basic skills needed for physical exercise and sport specific skills variedly
	keeps up his/her physical ability to function under guidance	keeps up his/her physical ability to function	monitors, assesses and keeps up his/her physical ability to function
Keeping up and promoting physical, psychological and social wellbeing with the help of physical exercise	understands the meaning of exercise to physical, psychological and social wellbeing under guidance	understands the meaning of exercise to his/her physical, psychological and social wellbeing	understands the meaning of exercise to physical, psychological and social wellbeing
Interaction and cooperation	takes part in physical exercise following the instructions given and observes the principles of fair play	takes an active part in physical exercise observing the principles of fair play	takes an active part in physical exercise promoting the principles of fair play
Considering health, safety and ability to function	usually observes safety in sports.	acts safely when taking physical exercise both independently and in a group.	promotes group safety with his/her actions.

Key competences for lifelong learning: 2. Interaction and cooperation, 4. Health, safety and ability to function.

In validation of prior learning general upper secondary school courses *Skill and condition* (LI1) or *Individual and group training* (LI2) compensate for *Physical education* studies in core subjects.

5.1.8 Health education, 1 credit

Objectives

Student

- ◆ displays the aspiration and ability to maintain and promote health with his/her actions and knowledge
- ◆ understands in his/her own lifestyle and environment the factors that impact physical, mental and social ability to function
- ◆ knows the meaning of mental health, sexual health and human relations to one's wellbeing
- ◆ knows the harms of smoking and intoxicants and knows how to prevent health damaging factors
- ◆ knows about lifestyles and habits that benefit health
- ◆ understands the links between exercise, nutrition, rest, sleep, recreation, human relations and health and takes them into account in his/her actions
- ◆ recognizes the basic factors that burden health and ability to work in the land survey field and knows how to develop his/her working methods, the safety and healthiness of his/her working environment in cooperation with others
- ◆ knows how to prevent injuries, copes with the most common first aid situations, knows how to get help as well as how to act ergonomically
- ◆ knows about the health differences of the population and the risk factors of the most common national diseases and how to prevent them
- ◆ recognizes the factors that influence his/her endurance and knows how to work to promote it
- ◆ knows how to use student and other healthcare services, engage in health enhancing physical activity and understands their significance to maintaining his/her ability to function.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
	Student		
Maintaining and promoting physical, psychological and social health and wellbeing	takes into account, under instruction, the most common lifestyles and habits that benefit health (such as physical exercise, nutrition, rest, sleep, recreation, mental health, human relations, sexual health) and is willing to promote his/her own health and endurance	takes into account the most common lifestyles and habits that benefit health, participates in activities that promote them and his/her own endurance	acts in a way that promotes his/her health, wellbeing and endurance, prevents factors that are harmful to health and justifies his/her actions with research data and experience that link together lifestyle and health
Following the method of operation that promote physical, psychological and social health and safety of the operating environment	follows the methods of operation of the organization that promote health and security but needs guidance in new situations	takes into account the factors that burden health and his/her ability to function and wants to promote healthiness and safety in his/her actions and the operating environment	considers factors that impact health and safety from different points of view and promotes the wellbeing of the community with his/her own actions
Making use of health enhancing physical activity and health care services	plans and engages in health promoting exercise under guidance and knows how to search for help from healthcare services when necessary	engages in health promoting exercise following a programme made and uses healthcare services when necessary	makes use of the possibilities of health enhancing physical activity independently to help keep up his/her ability to function and knows how to use the health care services accordingly
Prevention of injuries, first aid and ergonomic activity	recognizes possible injury risks, knows how to get and give first aid in most common situations requiring first aid and also follows ergonomic procedures in familiar situations	prevents injuries with his/her actions, knows how to get and give first aid and also follows ergonomic procedures	acts carefully and prevents injuries, knows how to get and give first aid and also follows ergonomic procedures and saving him-/herself

Possessing the knowledge base of factors promoting physical, psychological and social health and ability to function and factors preventing national diseases and harming health as well as the adverse effects of the profession	knows about the most common health hazards (such as smoking and substance abuse) and also about the most common factors that burden health and condition and about national diseases but needs guidance to search for information on health promotion.	makes use of knowledge base that promotes health and ability to function in his/her activities, knows the factors harmful to one's health as well as health hazards due to unhealthy lifestyle and is aware of possible occupational health issues.	utilises information that promotes health and ability to function in his/her activities variedly and searches for information on possible occupational health issues independently.
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Key competences for lifelong learning: 1. Learning and problem solving, 2. Interaction and cooperation, 3. Vocational ethics, 4. Health, safety and ability to function, 6. Sustainable development, 8. Communications and media skills, 10. Technology and information technology

In validation of prior learning general upper secondary school courses *Foundations of health* (TE1) compensates for *Health education* studies in core subjects.

5.1.9 Arts and culture, 1 credit

Objectives

Student

- ◆ understands the meaning of arts and culture in his/her own life and uses their various forms in a multi-cultural community
- ◆ participates in art and culture events, develops culture in the school community and maintains its aesthetic looks
- ◆ expresses ideas, experiences and feelings e. g. through music, dance, theatre, literature or visual arts and appreciates the ways of expression and visions of others
- ◆ observes the principles of sustainable development in his/her choice of materials and in work.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
	Student		
Making use of arts and culture	participates in art and culture events	fosters the culture of the school community by maintaining its aesthetic looks	renews the culture of the school community by developing its aesthetic looks
Creating a production	plans and creates a product that displays his/her thoughts, experiences and emotions under guidance, in the way that best suits him/her	plans and creates a product that displays his/her thoughts, experiences and emotions in a way that best suits him/her	plans and creates a product, production or performance that portrays and displays his/her thoughts, experiences and emotions in a way that best suits him/her
	takes into account, according to the instructions saving energy and conserving nature in use of material and in his/her work	acts in a way that conserves nature and saves energy when using materials and working	chooses the materials for his/her work in a way that it conserves nature and saves energy
Appreciation of the expression and views of the others	tells about the cultural characteristics that he/she has recognized in the expressions of the others.	gives constructive feedback on the expression and views of the others.	develops his/her own expression by appreciating the views of the others.

Key competences for lifelong learning: 2. Interaction and cooperation, 6. Sustainable development, 7. Aesthetics.

In validation of prior learning general upper secondary school courses *Me, visual images and culture* (KU1), *Environment, place and space* (KU2), *Music and me* (MU1) or *A polyphonic Finland* (MU2) compensate for *Arts and culture* studies in core subjects.

5.2 OPTIONAL MODULES

5.2.1 Optional additional modules to compulsory core subjects

Core subjects listed in Section 5.1 can be chosen as Optional additional modules to core subjects. The education provider defines their objectives, basic contents and assessment.

5.2.2 Environmental studies, 4 credits

Objectives

Student

- ◆ observes ways of working and acting that comply with the principles of sustainable development in a way they help him/her achieve and complement vocational skills. The study unit will deal with the following topics related to sustainable development:
- ◆ works in an energy saving way in his/her job.
- ◆ prevents waste and sorts waste appropriately and also knows the lifespan of vocationally relevant products.
- ◆ works in a way that minimizes environmental risks and preserves cultural heritage.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
	Student		
Knowing the most important global, regional and local environmental problems and their proposed solutions as well as how to act according to the principles of sustainable development and responsible activity	knows the basic principles of sustainable development in his/her work	knows the challenges of sustainable development and how he/she can try to observe the principles of sustainable development at work	knows the basics of circulation of matter and flow of energy on the earth knows challenges of sustainable development and suggested solutions as well as how to act according to the principles of sustainable development in his/her work
Knowledge of vocationally essential waste management and prevention of waste	knows how to prevent waste and how to sort waste under guidance in ordinary duties	knows how to prevent waste and sorts waste according to instructions	knows how to prevent waste when designing and acquiring products and packaging and sorts waste independently
Preservation of cultural heritage in a way that complements vocational skills	recognizes the basics and significance of cultural heritage under instruction	knows how to preserve cultural heritage in his/her profession	is active in the preservation of the cultural heritage in his immediate environment and promotes it in his/her profession
Choosing eco-efficient working methods and materials as well as recognizing the life span of the key products from the point of view of vocational skills	chooses tools and materials that promote eco-efficiency under instruction	chooses tools and methods that promote eco-efficiency	chooses tools and methods that promote eco-efficiency and also recognizes their impact on the lifespan
Observing environmental legislation and acting according to environmental quality systems	work under instruction observing the essential environmental regulations in the profession	works according to the environmental regulations	acts according to the environmental regulations and foresees future changes
	work under instruction observing environmental quality system	works according to the environmental quality systems in his/her profession	participates actively in the drawing up and/or development of the environmental quality system at the workplace
Obtaining and using information sources essential from the point of view of acquiring vocational skills	searches under instruction for environmental information from different sources and modifies it to suit vocational needs.	sorts, compares and analyses gathered environmental information and modifies it to suit vocational needs.	sorts, compares and analyses gathered environmental information, modifies it independently and applies it in his/her work.

Key competences for lifelong learning: 1. Learning and problem solving, 3. Vocational ethics, 6. Sustainable development, 8. Communications and media skills, 10. Technology and information technology

In validation of prior learning general upper secondary school course *Environmental ecology* (B13), compensates for 1 credit of *Environmental studies* in core subjects.

5.2.3 Information and communications technology, 4 credits

Objectives

Student

- ◆ uses IT tools and systems needed in his/her job to gather, process, modify, save and present data
- ◆ adopts and applies new IT peripherals, processes and programs (if needed using helpdesk)
- ◆ works using efficient methods and procedures, such as touch typing and different mouse techniques
- ◆ uses operating systems software and makes use of applications software, such as word processing, spread sheet, email, presentation graphics and calendar software to produce, edit and present information needed in work assignments in the land surveying sector
- ◆ manages the files produced by the applications software used in the land survey field and searches for information needed in their vocational field using different professional search engines and applications
- ◆ uses network communications methods and applications to send and share information
- ◆ observes copyright, information security and confidentiality instructions and regulations
- ◆ uses ergonomically correct working postures.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
	Student		
Acquiring and processing information	searches, saves and copies files needed for work assignments and also searches for information needed for work assignments from online services	knows how to use professionally relevant files and web search engines appropriately and efficiently	takes into account the technical limitations and possibilities in file management applies professionally relevant web search engines case-by-case and situation-by-situation and uses them actively and also assesses the reliability and suitability of the information gathered
Information processing and editing	uses application software in his/her work assignments, such as word processing, spreadsheet, email, presentation graphics and calendar software	uses application software efficiently to produce and edit work related data	uses application software variedly to produce and edit information according to different working situations and circumstances
Sending and sharing of information	uses web communications methods in work assignments	uses different web communications methods efficiently to send and share work related information	applies the alternatives offered web communications to the different work related situations and needs, as well as takes into account the responsibility and safety aspects concerned
Observing copyrights, information security, confidentiality and ergonomics	acts according to copyright, information and data security and ergonomics instructions and regulations.	uses ergonomically recommended ways of working.	foresees and considers information and data security risks and develops his/her working environment and methods with information and data security and ergonomics objectives in mind.

Key competences for lifelong learning: 1. Learning and problem solving, 2. Interaction and cooperation, 8. Communications and media skills, 9. Mathematics and natural sciences, 10. Technology and information technology

The qualification requirements for general upper secondary schools do not include a course that would compensate for the *Information and communications technology* studies in vocational upper secondary education.

5.2.4 Ethics, 4 credits

Objectives

Student

- ponders the meaning of values, norms and views in his/her life, personal relationships and in work
 - ◆ justifies his/her choices and is able to assess their impact on human dignity, justice and sustainable development
 - ◆ shows honesty and responsibility in his/her actions, respects other people and also shows good manners in his/her work and human relationships
 - ◆ ponders ethical questions and problems that relate to his/her own life, relationships, society, environment and working life
 - ◆ knows how to solve both alone and with other people working life related value and norm contradictions in his/her own vocational field in an ethically acceptable way
 - ◆ acts ethically in different contradiction and crisis situations
 - ◆ has the readiness to participate in the development of value base and ethical principles in the land survey field
 - ◆ gathers information on the vocation ethical value base of his/her own and other vocational fields and understands and uses it as a vocational resource at work
 - ◆ observes and recognizes ethical problems in the land survey field, processes them and presents justified views on them.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
	Student		
Pondering ethical questions	discusses values related to his/her own life and relationships under instruction and talks about ethical and world view questions	discusses ethical, world view questions as well as questions and values related to his/her own life and human relations	ponders the significance of values, norms and different world views in his/her own life, in relationships between other people and in working life and society as a whole
Ethical actions	observes good manners and responsibilities at work and in its problem situations but need support and instruction in new situations	acts responsibly and ethically at work and in working life contradiction and crisis situations	acts independently, responsibly and ethically in work and working life contradiction and crisis situations and knows how to justify his/her actions
Acquiring information and using ethic knowledge base at work	searches for information on ethical questions in his/her vocational field under instruction and uses knowledge base in familiar situations	searches for information on vocationally ethical knowledge base of his/her own and other fields and uses it in his/her own life and work	actively acquires information on vocationally ethical knowledge base of his/her own and other fields and uses it as a professional resource
			justifies his/her choices and wants to participate in the development of the ethical principles and value basis his/her own field
Processing value and norm contradictions at work	knows how to detect ethical problem situations in his/her profession and solves work related value and norm contradictions ethically together with members of the community.	recognizes ethical problem situations in his/her profession and searches for solutions to these problems together with others and also assesses the impact of the solution from the point-of-view of the key parties.	recognizes independently the ethical problem situations in working life and in his/her own vocational field, knows how to solve them ethically and assess their impact on the basis of human dignity, justice and sustainable development.

Key competences for lifelong learning: 1. Learning and problem solving, 3. Vocational ethics, 6. Sustainable development, 8. Communications and media skills, 10. Technology and information technology

In validation of prior learning general upper secondary school courses *Introduction into philosophical thinking* (FI1) and one of the following entities a) *Nature and significance of religion* (UE1), *The church, culture and society* (UE2) and *Human life and ethics* (UE3), or b) *The Orthodox world* (UO1), *Dogmatics and ethics* (UO2), and *Biblical studies* (UO3) or c) *A good life* (ET1), *The world view* (ET2) and *Individual and community* (ET3) compensate for *Ethics* studies in core subjects.

5.2.5 Cultural knowledge, 4 credits

Objectives

Student

- ◆ gets along with people representing different cultures
- ◆ knows how to greet and receive visitors and talk to them
- ◆ is able to observe the limits of appropriateness in his/her activities, the different roles of men and women, the instructions on dressing and behaviour as well as the unwritten rules and procedures
- ◆ recognizes cultural differences in workplace behaviour and hierarchy in work related public relations and behaves accordingly in normal work situations, especially in customer service
- ◆ describes his/her country's common cultural features to representatives of other cultures: such as essential history, sights, arts, sports achievements and entertainment as well as building culture
- ◆ ponders the interpretations of historical events in different countries and scales the meaningful events and eras of his/her native region and home country against the history of the neighbouring countries and the world
- ◆ compares the key cultural flows and icons in his/her country and Europe
- ◆ recognizes the special features of their vocational field in other countries.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
	Student		
Taking into account the most common cultural features	recognises general features of other cultures	recognizes cultural differences in other people's activities	takes into account the cultural background of the people he/she meets
Behaviour and dress code in different situations and meeting different people	recognises cultural differences in people's day-to-day activities in Finland and elsewhere	works together with other people despite cultural differences	meets foreign co-workers, clients and visitors without cultural conflicts
Taking into account the special features in one's vocational field	recognizes the features of services and products in his/her field in different countries	compares the features of his/her culture to those in other cultures	takes into account the features of other cultures in his/her actions
Behaving according to organisation environment and duties	recognizes the key factors in his/her work	tells foreign visitors essential things about Finland and his/her work	develops his/her own organisation based on the experiences he/she received from others
Taking essential cultural history and present situation of the immigrants and other minority cultures into account	searches for information on the backgrounds of immigrants and other minority cultures	takes others into account while working despite their ethnic background, language, disability or age	takes others into account while planning his/her work and working despite their ethnic background, language, disability or age
Making use of language skills and cultural knowledge	uses the language skills acquired in familiar situations.	uses the language skills acquired in international interaction situations.	works in international connections using his/her language skills.

Key competences for lifelong learning: 2. Interaction and cooperation, 8. Communications and media skills, 11. Active citizenship and different cultures.

The qualification requirements for general upper secondary schools do not include a course that would compensate for the *Cultural knowledge* studies in vocational upper secondary education.

5.2.6 Psychology, 4 credits

Objectives

Student

- ◆ observes and understands widely man and the factors affecting his activities
- ◆ recognizes, acknowledges and processes psychic phenomena with the help of psychological knowledge and concepts
- ◆ applies psychological knowledge to work assignments in his/her professional field
- ◆ applies the psychology of learning to his/her own studies
- ◆ knows how to observe and think critically
- ◆ knows how to observe the impact of feelings in different interaction and group situations
- ◆ explains his/her behaviour and that of others using psychological and social psychological knowledge
- ◆ knows how to act in a way that promotes his/her psychological wellbeing and coping with duties in the vocational field
- ◆ performs well in customer service and group work situations in the field of business and public administration.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
	Student		
Knowledge of psychological concepts and explaining and understanding human behaviour	knows the common concepts of psychology and understands their connection to human behaviour	uses psychological information to explain human behaviour in common everyday and working life situations	is able to apply his/her knowledge of cognitive psychology and personality psychology to common working life situations and is able to explain his/her behaviour and the behaviour of others through them

Knowledge of the development of human psyche	knows the psychological, biological and social factors that form the basis for individual psychological development	understands the inter-relations of the factors forming the foundations for psychological development in different phases of life and at different ages	understands the possible problems of psychological development and understands the development can be influenced
Learning and self-awareness	knows key factors that affect the learning situation	assesses his/her own learning, under instruction relying on psychological knowledge	understands the learning process through psychological knowledge and applies it in his/her studies
Understanding the effect of motivation, feelings and commitment on his/her work performance and that of others	takes the significance of motivation, feelings and commitment into account in his/her own performance	works with different people in his/her work and study community and understands the significance of motivation and commitment on performance	applies basic psychological knowledge of human thinking, observation, personality features, feelings and other mechanisms regulating behaviour
		understands the impacts of committing to work and indentifying oneself with the group on work performances and coping at work	uses psychological knowledge to improve his/her self-knowledge and self-image
			acknowledges his/her own feelings and those of others and also controls his/her feelings and attitude in working life accordingly
Maintaining psychological capability to work and functioning	promotes his/her psychological capability to work and function under instruction	knows how to maintain psychological well-being and contributes to the well-being of the workplace	acknowledges the psychological factors that affect his/her own endurance and stress management and also knows how to influence them in a way that promotes his/her endurance
		understands the complexity of defining mental health	knows how to get help in his/her own mental health questions or those of persons in his/her immediate family
Acting in human relationship and interactive situations in the workplace	applies the most essential psychological knowledge when acting in common workplace customer service and interactive situations	knows the significance of social interaction and culture in psychological human behaviour and recognizes different methods of leadership and their influence on the work culture	works cooperatively in different roles and understands the meaning of leadership
Knowledge of the social aspect of socio- psychological information	knows the key concepts of social psychology.	understands the effect of the roles, norms and group dynamics in different social groups.	understands the behaviour of people from different social and cultural backgrounds through social psychology.

Key competences for lifelong learning: 1. Learning and problem solving, 2. Interaction and cooperation, 3. Health, safety and ability to function.

In validation of prior learning general upper secondary school courses *Mental activity, learning and interaction* (PS1) compensates for one credit of *Psychology* studies in core subjects. If the student has also completed *Human psychological development* (PS2), *Motivation, emotions and higher-level cognitive activity* (PS4) and *Personality and mental health* (PS5), they compensate for *Psychology* studies in core subjects.

5.2.7 Entrepreneurship, 4 credits

Objectives

Student

- ◆ develops business idea or productises his/her own knowhow into entrepreneurship
- ◆ assesses the development needs based on changes in operating environment, customers' needs, competition, working environment and his/her own expertise
- ◆ follows the principles of profitable business operations in his/her entrepreneurship and also takes into account the cost structure of the operation and the impact his/her own work input has on profitability.

Assessment

The table comprises the assessment criteria for three levels of competence together with the targets of assessment. In vocational upper secondary education and training the targets of assessment also constitute the core contents of the module.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA		
	Satisfactory 1	Good 2	Excellent 3
	Student		
Developing a business idea or productising one's own skills	develops a business idea as a member of a group or productises his/her own expertise under instruction	develops a business idea as a member of a group or productises his/her own expertise	develops a business idea independently or productises his/her own expertise making use of the expertise in the working community
	defines procedures, central services or products related to his/her business operations under instruction	finds out about operational or business ideas related to his/her business operations and key services and products working in a group	finds out about the operational or business ideas of different companies or organisations and key services and products related to business activities
	acquires under instruction information on product or service development needs based on e.g. changes in operating environment, customer needs, competition or company expertise	acquires information on product or service development needs based on e.g. changes in operating environment, customer needs, competition or company expertise working in a group	acquires independently information on product or service development needs based on e.g. changes in operating environment, customer needs, competition or company expertise
	surveys different alternative solutions under instruction	surveys different alternative solutions	surveys different alternative solutions independently
	compares different options under instruction	in his/her work compares options and sets quality and cost objectives that take sustainable development into account	in his/her work compares options and sets quality and cost objectives that take sustainable development into account
		presents the alternatives to e. g. an expert, the foreman or clients	presents the alternatives he/she considers the best e. g. to an expert, the foreman or clients and negotiates on them
Planning business activities	chooses the alternative to be carried out under instruction and draws up an operation plan for it that contains the key information on execution	chooses the option that is to be executed cooperatively and derives an operation plan for it that contains the basic information about the execution	chooses or agrees on the viable alternative and draws up an operation plan for it that contains the key information on execution
	talks about the plan and makes the changes agreed on	presents the plan and changes it based on feedback received	presents the plan and develops it based on feedback received

Executing development projects or business activities	executes the operation plan drawn up under instruction	executes the operation plan drawn up	executes independently the operation plan drawn up
	adopts usual working methods, tools and materials required for the operation plan under instruction using information technology	adopts usual working methods, tools and materials required for the operation plan using information technology	uses work methods, tools and materials required for the operation plan in interaction with his/her working community using information technology
	works with experts under instruction in different stages of the activities	works with experts in different stages of the activities	uses expert networks in different stages of the activities
	works in the enterprise observing safety instructions and agreed principles of sustainable development	works in the corporation observing safety instructions and agreed principles of sustainable development	works in the corporation observing safety instructions and especially the principles of quality and sustainable development
Assessment of the execution of one's own activities, projects or business operations	assesses the progress of his/her own activities and business operations under instruction	assesses the progress of his/her own activities and business operations	assesses the progress of his/her own activities and business operations against the objectives set
	makes the changes agreed on	agrees on possible changes	makes justified change or improvement suggestions and agrees on their execution
Presenting of a development project or business operations	presents the execution phase and its results under instruction	presents the execution phase and its results	presents his/her whole development project or business operations and its results in a way that fits the nature of the project
Success and overall profitability of activities	works under instruction in his/her work or business activities observing profitability	works or runs his/her business operations observing profitability	works, acts in a working community or runs his/her business operations observing profitability
	calculates the share of the cost accumulated by his/her own work input.	calculates the costs of the activities and the share accumulated by his/her own work input.	works cost-efficiently while considering time and other available resources and also calculates the costs of the operation and the share accumulated by his/her own work input.

Key competences for lifelong learning: 1. Learning and problem solving, 2. Interaction and cooperation, 5. Initiative and entrepreneurship, 6. Sustainable development, 10. Technology and information technology

The qualification requirements for general upper secondary schools do not include a course that would compensate for *Entrepreneurship* studies in vocational upper secondary education.



6

FREE CHOICE MODULES IN CURRICULUM-BASED VOCATIONAL EDUCATION AND TRAINING, 10 CREDITS

A student is to include 10 credits of free choice modules into his/her studies, the objectives and assessment of which are to be included in the student's personal study plan.

Free choice modules can be vocational studies in one's own or other vocational fields, or core subjects, general upper secondary studies or studies preparing for the matriculation examination or further studies, working experience or guided hobbies, which support the general and vocational training objectives and the growth of the student's personality.

7

STUDENT ASSESSMENT IN CURRICULUM-BASED VOCATIONAL UPPER SECONDARY EDUCATION AND TRAINING

7.1 TASKS AND OBJECTIVES OF ASSESSMENT

In addition to what the Act on Changing the Act on Vocational Education and Training (Act 601/2005, section 25) stipulates, assessment is used to guide, motivate and encourage a student to reach the objectives and support him/her to develop a positive self-image and grow as a professional. In addition to guiding and supporting, the student assessment is to produce information on students' competence for the student him-/herself, the teacher and employer as well as for possible applying for further studies.

7.2 INFORMING ABOUT ASSESSMENT

The implementation of student assessment forms an entity, in which the education provider must include in its curriculum a plan on how to assess the various qualification modules. It includes a plan on the implementation and assessment of skills demonstrations approved by the local board for vocational skills demonstrations (Act 601/2005, section 25 a).

Before the studies begin, the students and all those taking part in the assessment process must be informed of the assessment principles and how they are to be applied (Decree 603/2005, section 3). The matters to be informed are at least the tasks and objectives of assessment, recognition and validation of prior learning, assessment of learning and competence including on-the-job learning and skills demonstrations, targets and criteria of assessment, deciding on the grade, reassessment process and improving the grades, rectification of assessment and receiving a qualification certificate.

7.3 RECOGNITION AND VALIDATION OF A STUDENT'S PRIOR LEARNING

The education provider is to inform the student of what kind of material and documents must be presented for the recognition of prior learning and when the student must apply for recognition of prior learning (Decree 603/2005, section 3).

Recognition of prior learning

In addition to what the Government Decree on amending the Decree on Vocational Education and Training (Decree 603/ 2005, section 10 (1) stipulates, a student's competence must be assessed as early as at the beginning of the studies. The student's competence and its level must be investigated for the identification of his/her strengths and for the recognition of prior learning. Recognition of prior learning forms the basis when setting his/her personal objectives, but also to be able to determine the amount of guidance and support needed.

Recognition of prior learning calls for an assessment discussion in which the student and teacher or teachers participate. To promote recognition of prior learning different facilitating assessment methods must be developed.

Validation of prior learning

In addition to what the Act on Amending the Act on Vocational Education and Training and the Decree on Amending the Decree on Vocational Education and Training stipulate (Act 601/2005, section 30, Decree 603/ 2005, section 12 a), recognition on prior learning is to prevent overlapping studies and shorten the study time.

If the recognition process shows that the objectives set for the module in question, or part thereof, have been reached, such prior learning is validated. Validation of prior learning is recorded in the student's personal study plan. More detailed information on personal study plan in Chapter 8.1.

Validation of prior learning is part of student assessment and it is subject to the same statutes as other forms of assessment (Act 601/2005, sections 25, 25a and 25c). Studies in the qualification to be completed can be substituted or accredited by validation of prior learning. The modules substituted by the validation of prior learning are marked in the qualification certificate (Chapter 7.9). The teacher or teachers in charge of the studies in question decide on the validation of prior learning. No general time limit can be set before which the acquired competence could not be validated, but the validity of the competence can be checked. If necessary the

student must demonstrate the correspondence of his/her competence with the skills requirements and objectives of the qualification concerned.

The studies assessed in another qualification certificate or general upper secondary school certificate compensate for corresponding core subjects as well as free choice modules and the optional modules included in vocational modules, a total of 40 credits at most. Recognition of individual general upper secondary school courses into core subjects is regulated in Chapter 5.

If there is no grade for the competence that covers a complete module and has been achieved through earlier studies or in another way, such competence must be demonstrated to receive a grade for the qualification certificate. Skills demonstrations are used to show evidence of competence in vocational qualification modules. In further and specialist vocational qualifications the grade “approved” awarded by the qualification committee is marked in the qualification certificate for the recognised module.

The grades of qualification modules which are substituted through recognition and validation can be raised during training. After the training is completed such improvement of grades is done as a private student.

Conversion of grades

The grade scale is valid in a way that is stipulated in the Decree on Amending the Decree on Vocational Education and Training (Decree 488/2008, section 10). A student is assessed based on the assessment practices prevailing in the institute, where he/she currently pursues his/her studies. If the grade scales differ from one institute to another, the institute performing the recognition must convert the grades and determine their correspondence in the student’s favour. The grades are to be converted as follows:

GRADE SCALE		
1–3	1–5	5–10
excellent 3	excellent 5	excellent 10
		excellent 9
good 2	good 4	good 8
	good 3	satisfactory 7
satisfactory 1	satisfactory 2	fair 6
	satisfactory 1	pass 5

7.4 ASSESSMENT OF LEARNING AND COMPETENCE

Student assessment is criteria based, which is to say that a student's learning and competence is always compared to either the skills requirements of vocational qualification modules or the objectives of core subjects as well as the assessment criteria based on them.

A student has the right to learn before the competence described in the skills requirements and the learning objectives are assessed to obtain a grade in the qualification certificate.

Assessment of learning

The objective of assessment of learning is that the student knows what he/she knows and what there is still to learn. When performing assessment of learning, the teacher and workplace instructor must use methods that motivate and activate the student. They are used to support and motivate the student to reach the skills requirements or objectives as well as to develop his/her self-assessment skills. The student assesses his/her learning based on the skills requirements, objectives and assessment criteria of the module.

Learning is assessed during the whole training period or duration of studies by giving the student oral or written feedback on the progress of learning. Numerical assessment is not needed when assessing learning. Feedback is used to support and guide the student to achieve the best possible performance by bringing out the student's strengths. Assessment of learning is used as a basis to make the necessary changes in the student's tuition and learning support. The changes are recorded in the personal study plan.

Assessment of competence

The student receives the grades shown in the qualification certificate based on assessment of competence using the assessment scale prescribed in the valid Decree on Vocational Education and Training.

When competence is being assessed, the assessment methods are chosen so that they measure reaching the skills requirements and objectives set, suit the study methods used and support the student's learning process. The students must have an opportunity to show his/her competence in various ways and also assess his/her competence him-/herself.

Skills in vocational modules are assessed using a skills demonstration and other ways of assessing competence. A skills demonstration is used to assess the competence determined in vocational skills requirements as widely as possible but at least what the qualification requirements state. If necessary, other forms of competence assessment supplements the competence necessitated by skills requirements. The education provider decides on the other methods to assess competence in its assessment implementation plan.

Skills demonstrations

In addition to what the Act on Amending the Act on Vocational Education and Training and Decree on Amending the Decree on Vocational Education and Training (Act 601/2005, sections 25, 25a and 25b, Decree 603/2005, section 5) stipulate on skills demonstrations, local board for vocational skills demonstrations, assessment and assessors, quality of skills demonstration venues and occupational safety, the skills demonstrations are planned, implemented and assessed in cooperation between the institute and the workplace based on the qualification requirements.

In a skills demonstration the skills requirements of vocational qualification modules are demonstrated as stated in Chapter 4. A skills demonstration is given in all the vocational qualification modules, optional modules included, if they are vocational modules. In core subjects and free choice modules skills demonstrations are not arranged. However, the education provider can decide that a skills demonstration is arranged in free choice modules if they are vocational modules.

A grade for a skills demonstration is given for all the vocational modules. A skills demonstration can be given in one or more modules at a time. If competence in more than one module is assessed in one and the same skills demonstration, a separate grade must be given for each module as per target of assessment set. If a skills demonstration for a qualification module is given in more than one parts, a grade is given for each part as per target of assessment, but an overall grade is not formed until all the parts have been completed.

Skills demonstrations are placed along the duration of the studies. The student must have an opportunity to acquire the competence to be assessed in the skills demonstration before the demonstration is arranged and improve his/her performance based on the feedback received on the demonstrations. The principles of coordinating on-the-job learning and skills demonstrations are listed in the skills demonstration implementation and assessment plan, which the local board for vocational skills demonstrations approves.

A student is also allowed to give skills demonstrations abroad, which must be agreed on in advance.

The education provider ensures that the student receives sufficient support and guidance to give a skills demonstration. Support and guidance are given before skills demonstrations, during them as well as in the form of constructive feedback after them.

Targets and criteria of assessment

The targets of assessment (what is assessed) and assessment criteria (level of competence) are stated in the qualification requirements module by module for levels: Satisfactory 1, Good 2 and Excellent 3. Assessment focuses on

- ◆ mastering the work process
- ◆ mastering the work methods, equipment and material
- ◆ underpinning knowledge
- ◆ mastering the key competences for lifelong learning.

Key competences for lifelong learning are learning and problem solving, interaction and cooperation, vocational ethics, health, safety and ability to function, initiative and entrepreneurship, sustainable development, aesthetics, communication and media skills, mathematics and natural sciences, technology and information technology, active citizenship and different cultures.

In the targets of assessment Key competences for lifelong learning, the following four key competences are assessed: learning and problem solving, interaction and cooperation, vocational ethics together with health, safety and ability to function. Other key competences are assessed in connection with the work process, work methods, equipment and material or underpinning knowledge.

Education provider draws up the assessment criteria based on the general assessment criteria given in Chapter 9.3 for the optional modules for which they have not been prescribed in the qualification requirements.

7.5 DECIDING ON THE GRADE

In addition to what the Act on Amending the Act on Vocational Education and Training and Decree on Amending the Decree on Vocational Education and Training stipulate (Act 601/2005, section 25 b, Decree 603/2005, section 11, Decree 488/2008, sections 10 and 13) stipulate, grades must be given on all the modules

in compliance with the qualification requirements, including the other optional modules and vocational competence enhancing modules included in the vocational studies (90 credits).

The grade to be awarded for a module is decided based on assessment of competence. If there have been several teachers assessing the competence, a decision is taken during an assessment discussion. A skills demonstration grade is mainly decided by teachers and working life representatives together according to the decision taken by the local board for vocational skills demonstrations. The grounds for assessment must always be recorded.

7.6 STORING ASSESSMENT MATERIAL

In addition to what the Decree on Amending the Decree on Vocational Education and Training (Decree 603/2005, section 11a) stipulates on storing assessment material, the grade given on a skills demonstration is stored as per target of assessment. If the skills demonstration taken by the student covers only a part of the module, the material on which the assessment of each part is based, must be stored so that it is possible to decide on a skills demonstration grade for the whole module.

7.7 REASSESSMENT AND IMPROVING THE GRADE

The Decree on Amending the Decree on Vocational Education and Training (Decree 603/2005, section 12) stipulates on reassessment and improving of grades.

7.8 RECTIFICATION OF ASSESSMENT

The Act on Amending the Act on Vocational Education and Training (Decree 601/2005, section 25c) stipulates on rectification of assessment.

7.9 CERTIFICATES

Qualification certificates

A qualification certificate is an official document, whose contents are to follow the qualification requirements. The Decree on Amending the Decree on Vocational

Education and Training stipulates on awarding a qualification certificate (Decree 488/2008, section 13). A qualification certificate must be awarded in apprenticeship training arranged as vocational upper secondary education and training.

A qualification certificate is an entity that comprises a vocational upper secondary certificate and skills demonstration certificate. A vocational upper secondary certificate contains grades on all the modules the qualification comprises. In the vocational upper secondary certificate The Driver Certificate of Professional Competence (Driver CPC) certifying the initial qualification in transport sector is marked as: See skills demonstration certificate. Only free choice modules can be left without a grade at student's option. In the vocational upper secondary certificate the module grades are based on assessment of the skills demonstration and other competence. Skills demonstrations must be passed in order for a grade to be given on the module for the vocational upper secondary certificate.

Separate grades are given for the core subjects determined by the Government. Competence achieved by core subjects included in vocational modules is assessed as vocational module skills requirements.

The Final Project is assessed in connection with the modules it is included in. Its scope and name are marked in the vocational upper secondary certificate, no separate grade is given. As to on-the-job learning the vocational upper secondary certificate gives its extent but no separate grade is given, because the competence acquired during on-the-job learning is assessed with skills demonstrations.

Studies compensating for a module or competence acquired in some other way are marked in the student's vocational upper secondary certificate with their grades. If the grade scales differ the conversion table given in Chapter 7.3 is used. For a module recognised from a further or specialist vocational qualification the grade to be marked in the certificate is "approved" and a footnote is used to show that it was completed as a competence-based qualification, for which the qualification committee concerned has awarded a certificate.

Skills demonstrations covering a whole module given previously are marked with their grades and short descriptions in the skills demonstration certificate. The certificate is also to provide the name of the institute that performed the assessment.

If recognition of prior learning is done for studies in a qualification that has not included skills demonstrations, the skills demonstration certificate is to bear the name and scope of the module together with a footnote to state that prior learning has been recognised from a qualification that has not included skills demonstrations. When prior learning is recognised from further or specialist vocational qualifications, the skills demonstration certificate is to bear the name and scope of the qualification together with a footnote to state that prior learning has been recogn-

ised from further or specialist vocational qualification X, for which the qualification committee in question has awarded a certificate.

When vocational modules (90 credits) include core subjects or general upper secondary studies in compliance with Government resolution (216/2001), the skills demonstration certificate is to bear the footnote: "Student has included x credits of core subjects, which are not assessed with skills demonstrations".

The qualification certificate must show that it consists of the vocational upper secondary certificate and skills demonstration certificate. The qualification certificate must also bear the name of the education provider or the institute awarding the certificate or both. A vocational upper secondary certificate is signed by the education provider and a skills demonstration certificate by the chairman of the local board for vocational skills demonstrations (Decree 488/2008).

Vocational upper secondary certificate is to provide the following information:

- ◆ student's name and personal identity code
- ◆ name of qualification and its scope 120 credits /3 years
- ◆ name of study programme
- ◆ qualification title according to Ministry of Education Decree
- ◆ modules completed grouped into vocational modules (90 credits), core subjects (20 credits) and free choice modules (10 credits), their scope and grades
- ◆ name and scope of Final Project
- ◆ scope of on-the-job learning
- ◆ date and signatures
- ◆ stamp of education provider or school.

Skills demonstration certificate is to provide the following information:

- ◆ student's name and personal identity code
- ◆ name of qualification and its scope 120 credits /3 years
- ◆ name of study programme
- ◆ qualification title
- ◆ skills demonstrations completed by module (name and scope of module, short description of skills demonstration completed, name of skills demonstration venue, grade on skills demonstration or for special needs students a short description of student's vocational competence and skills shown in the skills demonstration.)
- ◆ date and signature (chairman of the local board for vocational skills demonstrations)
- ◆ stamp of education provider of school.

Qualification certificate is also to provide the following information:

- ◆ contact information of the education provider or institute awarding the certificate
- ◆ name of education provider or institute if not mentioned earlier
- ◆ authorization to provide education the Ministry of Education has granted
- ◆ legislation the training is based on
- ◆ mention that training has been arranged in accordance with the qualification requirements decided by National Board of Education (date of regulation and register number)
- ◆ mention that the qualification is approved by the Ministry of Education (date and number of the Government Decree in force at the time training begins)
- ◆ prerequisites for admission and national level of qualification
- ◆ eligibility for further studies the qualification provides
- ◆ definition of scope of qualification, academic year and credit
- ◆ assessment scale
- ◆ special regulations related to practising the profession

Certificate on completed training

Government Decree on Amending the Decree on Vocational Education and Training (Decree 488/2008, section 13) stipulates the contents of a certificate on training completed.

A certificate of completed training, qualification modules or skills demonstrations

In addition to what the Government Decree on Amending the Decree on Vocational Education and Training (Decree 488/2008, section 13) stipulates on awarding certificates, a student is awarded a certificate on completed modules and studies, skills demonstrations and prior learning. In addition to the grades achieved the certificate must also list participation in modules that the student has not been given a grade yet as well as information of what the student must complete to receive a qualification certificate.

When a student enters working life after completing a module or modules, the certificate is to include a supplement describing the vocational competence achieved by completing the modules in question.

Certificate of resignation

Government Decree on Amending the Decree on Vocational Education and Training (Decree 488/2008, section 13) stipulates on the contents of a certificate of resignation.

Qualification certificate or certificate supplement for international use

Government Decree on Amending the Decree on Vocational Education and Training (Decree 488/2008, section 13) stipulates on issuing a qualification certificate or certificate supplement for international use.

The Driver Certificate of Professional Competence (Driver CPC) certifying the initial qualification in transport sector

The instructions given in Ministry of Education letter (12.6.2007 No. 146/530/2007) are in force concerning Driver CPC certifying the initial qualification in transport sector.

7.10 ASSESSMENT IN SPECIAL EDUCATION

The same principles are to be applied in assessing special needs students as to other students. If a student does not reach in a module the Satisfactory 1 level objectives set in the qualification requirements, the training can be adjusted. When the skills requirements or objectives of a qualification have been adjusted based on the Act on Vocational Education and Training 630/1998, sections 20 and 21 (2 and 3), an entry must be made in the certificate. A student must receive a qualification certificate even if qualification objectives have been adjusted.

A footnote must be made in the vocational upper secondary certificate as well as the skills demonstration certificate of adjusted skills requirements or objectives. Assessment must be implemented in proportion to the adjusted skills requirements or objectives, which means assessment criteria must be drawn up for them. The education provider draws up adjusted skills requirements or objectives for the module based on the Government Decree on Vocational Education and Training 811/1998, section 8. The grade scale must be the same as the one in general use. According to Section 10 of Government Decree on Amending the Decree on Vocational Educa-

tion and Training 603/2005, when training is arranged as special education, skills demonstrations can also be assessed verbally. A student must know that training completed in accordance to adjusted skills requirements or objectives may affect application for further studies and success in them.

If a student's competence level falls considerably short of the skills requirements and objectives set, a certificate of studies completed must be awarded instead of a qualification certificate. An appendix must be issued stating what the student knows best.

7.11 ASSESSING IMMIGRANT STUDENTS AND THOSE REPRESENTING DIFFERENT LANGUAGES AND CULTURES

The competence of immigrant students and those representing different languages and cultures is to be assessed in the same way as that of other students. Competence is to be assessed by using methods which allow assessing competence despite possible lacking language skills.

A student, whose mother tongue is other than the teaching language of the institute, must have, before taking a skills demonstration, such language skills that he/she understands the instructions and orders related to the work to be completed as the skills demonstration. The need for support must be identified and support activities based on the need must be planned in cooperation with the training institute, representatives of working life and the student. If necessary persons arranging and assessing a skills demonstration must receive instruction on how cultural factors affect communication between individuals. Persons arranging and assessing the skills demonstration must also be instructed to speak clearly when giving instructions.

Assessing mother tongue

If Finnish or Swedish is not the student's mother tongue, his/her Finnish or Swedish skills must be assessed according to the objectives of Finnish or Swedish as second language, also in the case that he/she has not received separate Finnish or Swedish as second language tuition. If both the teacher and the student consider the student's Finnish or Swedish skills to be of the Finnish or Swedish, mother tongue level, competence must be assessed against Finnish or Swedish, mother tongue objectives. Vocational upper secondary certificate must state which objectives the assessment of competence is based on, however, on the scale 1–3. Student's individual study plan,

including assessment, can include both mother tongue studies above (see Chapter 8.4).

The Finnish or Swedish skills of student who use sign language are assessed based on the objectives set in Finnish or Swedish for sign language users.

Assessing second national language

If the student has not studied Swedish or Finnish as a second national language, the vocational upper secondary certificate must state what he/she has studied instead. Teaching arrangements that affect assessment are determined in Chapter 8.4.

OTHER REGULATIONS IN CURRICULUM-BASED VOCATIONAL EDUCATION AND TRAINING

8.1 GUIDANCE AND COUNSELLING AND PERSONAL STUDY PLAN

Objectives for guidance and counselling

The objective of guidance and counselling is that the student receives enough information on his/her education and training before it starts and during it. The student is to know the modules included in the qualification, the studies and the options available. Another objective is that the student knows how to act in the educational institute community, knows how to develop his/her learning and interaction skills and self-knowledge as well as to assess his/her own activities and productions. He/She is able to plan his/her studies, draw up a personal study plan together with the teacher and assume responsibility for the studies. He/She knows how to follow the accumulation of credits and search for help to plan his/her studies.

The student is able to make choices and decisions concerning studies and life career. He/She recognizes possible problems related to his/her studies and life situation and know where to find support in them. He/She knows how to use the student social services society offers as well as other counselling, advice and information services. Reaching the objectives is supported by the education provider's obligation to inform the guardians of a minor student on vocational education and the progress of the student's studies.

Student's right to student counselling

The qualification comprises a minimum of 1.5 credits of student counselling (Government resolution 213/1999). Counselling activities are to support the student comprehensively in the different phases of the studies. Every student has the right to receive personal and other student counselling. The student has the right to receive the support services he/she may need in studies or life situation changes.

Arranging student counselling

The objective of student counselling is to promote educational, ethnic and gender equality. Objectives also include increasing students' well-being, preventing drop-outs, promoting employment and supporting application for further studies. Education provider must pay special attention the counselling of those students who have studying or learning difficulties (e.g. dyslexia), frequent absenteeism or life management difficulties.

As part of its curriculum the education provider is to draw up a student counselling plan, which determines the tasks and division of work for those involved in the counselling process. The plan serves as a development tool for the whole institute. It states how and what kind of support a student receives by those involved in counselling. The plan presents how cooperation with different education providers has been arranged in order that the student can choose modules and studies from different study programmes and qualifications as well as plan completing more than one qualification. It also determines other cooperation outside specialists and guardians. Student welfare plan is part of the counselling plan.

All the teachers of the institute and other persons responsible for counselling take part in the counselling process. Student counsellor has the main responsibility for arranging student counselling as well as for planning and implementing the counselling entity. A teacher's task is to guide and motivate the student to complete the qualification and planning the studies. The teacher's task is also to help the student find his/her strengths and develop his/her learning skills.

Student counselling is arranged as studies related, personal, group counselling and other guidance. Student receives counselling to support his/her studies and to make choices so that he/she is able to plan the contents and structure of his/her studies in accordance with his/her resources. Student counselling promotes students' community spirit throughout the training. The students' studies and well-being are monitored and supported in cooperation with the guardians.

The education provider is to inform the pupils of comprehensive school, their guardians, student counsellors and teachers of vocational education and training and how to apply. The education provider is to direct informing and counselling especially to those young people who have not managed to secure a training place after completed basic education and to their guardians.

The education provider is to develop its career and recruitment services in cooperation with business life and employment services as well as to promote and support students finding employment and getting access to further studies.

Individual study plan

An individual study plan supports a student's career planning and develops his/her skills in self-assessment. It is based on the student planning his/her own studies, individual choices, progressing in studies and assessing learning. A student is instructed in drawing up an individual study plan and monitoring its implementation. It is a plan the student is committed and motivated to implement throughout the training.

An individual study plan is drawn up through negotiation by the student, teacher or teachers and student counsellor when needed. The plan determines the learning objectives, completing the studies, methods used and timing together with assessment of the studies. When drawing up the plan the different learning styles are considered. Possible factors that prevent learning are recognized and the student's self-direction and vocational growth are supported.

The implementation of individual study plan and the progress of studies are monitored and if necessary the student is given remedial teaching. The student and teachers assess the possible barriers to implementing the individual study plan. The student is guided to make decisions concerning his/her learning as well as redefine and change the plan as studies advance if necessary.

An individual study plan comprises the student's individual choices, advancing in studies, assessment of learning, recognition and validation of prior learning, on-the-job learning places and times together with skills demonstrations.

8.2 ON-THE-JOB LEARNING AND WORKING SAFETY

In addition to what the Decree on Vocational Education and Training (Decree 811/1998, section 5, Government Decree Amendment 603/2005, sections 3 and 5) stipulate, the following is to be considered in on-the-job learning:

On-the-job learning is part of vocational education and training. It is a mode of arranging vocational education and training, in which qualification objectives are learnt at a workplace. On-the-job learning is objective oriented, guided and assessed training that takes place in a genuine working environment. On-the-job learning periods must be sufficiently long and versatile from the point of view of mastering the profession. Only in exceptional cases a student can complete on-the-job learning at a training institution in a practice enterprise or with similar arrangements.

Cooperation between workplaces and the education provider ensures that on-the-job learning and other training corresponds with the working life, is of quality and up-to-date. The education provider's responsibility is to take care that all the

partners in the area have the same view on arranging on-the-job learning. The education provider must see that the student receives sufficient counselling and training during on-the-job learning and that the teacher and other staff members have the resources to cooperate with working life. The education provider and teachers must together with working and business life ensure the quality of on-the-job learning so that the student achieves the skills requirements given in the qualification requirements.

The education provider is responsible for the implementation of on-the-job learning. Implementation includes planning, student counselling and assessment. The education provider must also see to the teachers' working life competence and training as well as training workplace instructors. At the workplace special attention is paid to guiding the student and giving feedback.

Usually the student does not sign a contract of employment with the employer for an on-the-job learning period and he/she is not paid wages or a salary. During an on-the-job learning period a student is entitled to receiving student financial aid and student social benefits in accordance with separate instructions. When on-the-job learning is arranged abroad, local regulations are also taken into consideration.

In addition to what the Act on Vocational Education and Training (Act 630/1998, sections 19 and 28) and the working safety regulations in force stipulate, the following is to be considered in working safety questions:

The agreement on training and skills demonstrations to be arranged at the workplace in connection with practical work assignments is to include the responsibilities related to safety, injuries and damages and insurances. Before starting the work, the employer and education provider ensure together that the student has the resources to do the work in question safely and without risking his/her health and by following the instructions given.

The regulations concerning the employer according to the Occupational Safety and Health Act Section 4 (1) are applied to the education provider when the work takes place at the institute or otherwise in the way determined by the education provider.

Student assessment during on-the-job learning period is described in Chapter 7.

8.3 VOCATIONAL SPECIAL EDUCATION

For equality in education to come true each student must have equal opportunities to pursue vocational studies and find employment after training and assume the role of an independent citizen in society disregarding their different learning capabilities.

The vocational education and training of a special needs student must be arranged in view of the equality principle primarily in ordinary vocational institutes in the same study groups with other students. Education and training can also be provided partly or completely in special groups. Vocational special education institutions primarily provide training for severely handicapped as well as preparatory and rehabilitative training and counselling. They are also to offer expert help to other training institutions. Vocational special education can also be provided as apprenticeship training.

Students who are in need of special teaching arrangements or student social services due to disability, illness, delayed development, emotional disorder or some other reason must receive special education. It ensures learning that is based on individual resources, self development and growth as a person. If necessary other support services and rehabilitation in cooperation with rehabilitation service suppliers are added to special education.

The education provider determines the principles of special education: objectives, implementation, teaching methods, support and special services, expert services, social partners and responsibilities. The institution must reserve sufficient resources for special education. Promoting special needs students' learning is everyone's task in the institution.

Need for special education must be determined based on the Act on Vocational Education and Training Section 20 and qualification requirements for each student individually. Reaching the objectives must be supported with the help of an individually designed and guided learning process and different support activities.

Individual educational plan (IEP)

A written individual educational plan (IEP) must always be drawn up for a student in need of special education (Act 630/1998, section 20). The plan is to include (Decree 811/1998, section 8)

- ◆ qualification to be completed
- ◆ qualification requirements used in teaching
- ◆ scope of qualification
- ◆ individual study plan drawn up for the student
- ◆ special teaching and student social services the student receives
- ◆ other personal services and support activities as well as
- ◆ criteria for special education

An IEP is to be drawn up together with the student, when necessary his/her guardian, representatives of previous school as well as teachers and student service specialists.

If vocational skills requirements have been adjusted, the personal study plan is to include a personal curriculum, which determines the student's learning objectives. They are based on the requirements of the qualification the student aim for. Vocational special education must be planned so that the student reaches as extensively as possible the same competence as in other vocational education. The objectives can be adjusted according to the student's resources either so that all the learning objectives are adjusted or only those of one or more modules. Teaching must focus on supporting the student's strengths so that he/she is ensured good opportunities to find employment. Special attention must be paid to achieving working confidence during on-the-job learning periods. The student must be explained how he/she can get the special services required after the training has been completed.

Student's progress must be monitored during training and the personal objectives and support activities changed as needed. Regulations on assessing special needs students are to be found in Chapter 7.10.

8.4 TEACHING IMMIGRANTS AND REPRESENTATIVES OF DIFFERENT LANGUAGE AND CULTURAL GROUPS

General

The skills requirements for immigrant students and students belonging to other language and culture groups, such as Saami, Romany and sign language students, are in the main the same as for other students. The requirements for vocational upper secondary qualification are applied to teaching.

Students, whose mother tongue is other than the language of teaching at the institution, must receive support particularly in language studies and through special teaching arrangements. If necessary the students' background, like mother tongue, culture and the language skills developing during the training, must be observed. Teaching arrangements are made to support students' own lingual identity along side with the majority language and culture. The education provider's curriculum is to comprise the implementation immigrants' and other language and culture group students' teaching arrangements.

Immigrants

In this connection immigrants are taken to mean students who have moved to Finland or were born in Finland but have an immigrant background. If necessary the reason for immigration, time spent in the country and developing Finnish skills are taken into consideration in teaching. The studies support the student's growth into an active and balanced member of both his/her own language and cultural community and Finnish society.

Saami speakers

Saami language teaching started in basic education is continued when possible in vocational education and training. Saami language training can be provided in Northern Sami, Inari Sami and Skolt Sami. Saami can be studied as mother tongue although education would not otherwise be provided in Saami.

Romanies

Teaching Romanies is done taking in to consideration the position of Finnish Romanies as an ethnic and cultural minority. Romany culture is considered in teaching arrangements. Romany language training is arranged as possible in cooperation with other education providers.

Sign language users

The requirements for vocational upper secondary qualification are applied to sign language culture and communication in sign language students' teaching and learning. Finnish or Swedish are used as reading and writing language alongside with sign language. Sign language teaching is planned so that it is possible for the student to act with an interpreter. Sign language users and hearing-impaired students' opportunities to communicate naturally are to be taken into consideration in learning environments.

Language teaching arrangements

The following teaching arrangements, which are in compliance with Government resolution (VnP 213/1999), can be applied to immigrants', Saami and Romany speakers' and sign language users' language studies (mother tongue, second national language, foreign language), if their mother tongue is other than Finnish or Swedish.

Mother tongue

If the student's mother tongue is other than Finnish or Swedish, the education provider can divide the compulsory modules in mother tongue and second national language differently from the stipulations of the Act on Vocational Education Section 12 (2).

The credits reserved for mother tongue and second national language (4 + 1 = 5 credits) can be combined and divided flexibly in possible student's own mother tongue studies, Finnish or Swedish as second language studies and second national language studies. Finnish or Swedish as second language means a language that has been learnt after the mother tongue in a Finnish language environment. A separate Finnish or Swedish for sign language user module (Chapter 5) has been drawn up for sign language students.

Students can study Finnish or Swedish either

- 1) in accordance with Finnish or Swedish as second language objectives (Chapter 5) or
- 2) in accordance with Mother tongue, Finnish or Swedish objectives (Chapter 5), if the student's Finnish or Swedish skills are assessed to be of mother tongue level.

A student, whose Finnish or Swedish skills are not of mother tongue level on all the area of language skills, studies according to Finnish or Swedish as second language objectives and contents. His/Her Finnish or Swedish language competence is assessed according to these objectives whether or not the education provider has offered Finnish or Swedish as second language teaching. Education provider can offer and student's study plan may include both of the above mentioned studies. A student can change in the middle of his/her Finnish or Swedish as second language studies over to studying Finnish or Swedish according to Mother tongue, Finnish or Swedish objectives.

A student must be offered his/her mother tongue studies when possible. As a mother tongue as student can choose to study also Romany, sign language or some other mother tongue (Act 630/1998, section 12 (3)). The immigrants' own mother tongue objectives are given in Chapter 5. A student can study his/her own mother tongue in accordance with the objectives of either Mother tongue, own mother tongue for foreign students (4 credits) or Foreign language (2 credits) or as free choice studies.

If a student studies his/her mother tongue according to the objectives of Own mother tongue for foreign students, his/her studies are to include Finnish or Swedish language studies.

Second national language

The students' second national language (Swedish or Finnish) teaching is arranged in accordance with the objectives of second national language taking into consideration the level of the students' language skills.

Foreign students can also replace second national language studies with their own mother tongue or Finnish or Swedish language studies (5 credits), Chapter 5. If necessary the teaching can be arranged as basics in second national language depending on the needs of the student and the vocational field.

Foreign language

A student's studies must also include foreign language studies. The foreign language of a student, whose mother tongue is other than Finnish or Swedish, can also be his/her mother tongue.

8.5 APPRENTICESHIP TRAINING

Apprenticeship training is regulated by the stipulations of the Act on Vocational Education and Training (Act 630/1998, sections 8 and 17), the Decree on Vocational Education and Training (Decree 811/1998, sections 6 and 7) and the Act on the Financing of the Provision of Education and Culture (635/1998).

The valid qualification requirements (national core curriculum and qualification Requirements of competence-based qualifications) are applied to apprenticeship training arranged as curriculum-based vocational education and training.

The education provider issues a qualification certificate in accordance with the qualification requirements for a qualification taken in vocational upper secondary education in accordance with the regulations of Chapter 7.9.

8.6 COOPERATION BETWEEN HOME AND EDUCATIONAL INSTITUTION

In addition to what the Act on Vocational Education and Training (Act 630/1998, sections 5 and 14) stipulates, the following is to be observed when arranging cooperation between home and educational institution:

In education and training offered to the young the education provider and the educational institution must take the initiative and maintain cooperation with a student's parents or guardians. Cooperation between home and institution is arranged so that it enhances student's independence and responsibility, advances studies and offers support in matters related to student's health, security and wellbeing. The individual needs of special needs students and students with different language and cultural backgrounds are to be taken into consideration in the cooperation.

The education provider and the guardians must cooperate in student counselling both during and at the end of studies. Counselling must support the students' transition to working life or further studies and enhance students' life management skills.

The part of the curriculum dealing with cooperation between home and educational institution is to be drawn up in cooperation with the authorities in charge of the implementation of social and healthcare in the home municipality of the educational institution.

8.7 STUDENT WELFARE SERVICES

In addition to what the Act on Vocational Education and Training (Act 630/1998, Sections 14, 28 and 37 a) stipulates on implementation of student welfare services and student's right to a safe learning environment, the following is to be observed:

The objective of student welfare services is to create a safe and healthy learning environment and promote the community spirit of the educational institution, wellbeing and pleasantness. The objective is to support the student and maintain the institution community's ability to function in situations threatening physical and psychological safety. Student welfare services are to promote early recognition of learning difficulties and other problems and prevent school drop-outs. In the case of minor students the education provider must cooperate with the guardians.

The education provider is to ensure the achievement of the objectives of student welfare services by issuing in its curriculum operating instructions which promote students' health and safety together with prevention and early recognition of different problems. Education provider is to issue instructions on attending to such activities of the educational institution as student's participation in training, monitoring the progress of studies and staying at the school dormitory. Preventive instructions are to be issued on smoking, use of substances, school bullying and disturbing. The education provider must have a crisis plan and instructions in case of disturbing behaviour, violence, injuries, accidents and deaths.

The education provider must monitor the outcome of the student welfare services and take necessary action. Students are to be encouraged to take part in and contribute to promoting wellbeing in their own school community. All those working with the students in the school community are responsible for student welfare services. The duties of multi-professional student welfare staff include coordinating and developing student welfare services.

The part in the curriculum dealing with student welfare services is to be drawn up in cooperation with the authorities and other parties attending to the implementation of social and welfare matters in the municipality or municipalities the institution operates in. The stipulations of the Primary Health Care Act and the Child Welfare Act must be considered when arranging student welfare services. At the same time arrangements must be made to ensure social inclusion and expert services in student welfare and psycho-social support. Student feedback is to be used in developing the services.

During vocational education and training a student must be informed on the implementation of student counselling and welfare services, the services of different administrative sectors, local support networks and qualification specific health requirements. In addition to the student also the guardian of a minor student must be informed of matters related to occupational safety and labour protection during on-the-job learning.

The education provider must see that the students know the school rules that are in force in the institution. The student's own responsibility must be emphasized in the observance of the school rules and other instructions.

9.1 DESCRIPTION AND BASIC VALUES OF THE LAND SURVEYING SECTOR

At present, the land surveying sector in Finland has a three-tiered educational structure. Someone gaining a vocational qualification in land surveying qualifies as a surveyor from an upper secondary vocational college. Within the land surveying field, it is possible to graduate as a Bachelor of Engineering from a university of applied sciences or as a Master of Science (Technology) from a university. The need for further professional qualifications, including specialist qualifications, is being looked into.

Land surveying is an important field for society. Surveyors are involved in establishing and developing basic structures for mastering geographical information, such as control point networks and GIS systems. The charts and maps they produce, the soil and environmental research they conduct, and the property and GIS systems and registers they maintain serve as a basis for land use planning. Surveyors also participate in planning processes, either as assistants or planners. Part of their job is to work as town planners and to set out land use plans. Real estate formation, property valuation and management, and the reliable upkeep of information on properties are also tasks of the land surveyor. If surveyors did not set out plans on land and check measurements, the buildings, roads, bridges and other structures in plans would not be built in the right places in accordance with quality requirements. Professionals in the field are also needed to take measurements in industry: for example, for the installation of machinery, shipbuilding, and other very precise tasks.

The information that land surveyors produce is used for maintaining both the social system and the local authorities' land use and cadastral systems, as well as to meet the everyday needs of people. One aspect of the profession is statutory work based on the needs of the state, local authorities, companies and private individuals. Some of the functions are the responsibility of state and municipal organisations, and some that of private enterprises.

Land surveying is a relatively small field in terms of number of employees, but wide in scope as a field and therefore also in terms of the need for knowledge and skills. Employees in the sector divide fairly equally into those working for state in-

stitutions, various organisations run by the local authorities, and private companies. The number of jobs in the private sector will increase in the future, however. Present forecasts suggest that the need for a qualified workforce in the sector will remain considerable or grow, on account of the number of people retiring in the near future and the ever increasing need for geographical information and applications. The role of surveyors will also extend to new applications, including satellite navigation, laser scanning, machine control automation, etc. as methods develop. One sign of the growing need for professionals is the amount of adult training in the field, which has increased quite dramatically in recent years.

Some of the land surveyor's tasks are office-based: handling maps and charts and processing GIS data and measurements, maintaining numerical cartographical databases and registers, preparing plan drawings, making calculations, consulting records, drafting documents and reports, and producing printouts. Some of the work is in the field: control point surveying, taking surveying and setting out measurements, checking measurements, soil investigations, real estate formation, special cadastral surveying and environmental research. Working on site usually involves being out all year long in all weathers and environmental conditions. Developments in working methods and equipment have made the work easier; nevertheless, working outdoors requires a good deal of physical fitness and good health, an inclination for such work and a positive attitude. Working outdoors also calls for environmental awareness and adherence to the principles of sustainable development on site.

Land surveying work is generally undertaken in small groups or in close collaboration with other actors in the sector, those in other industries represented on site, or with the client. If working in a team, the members of that team are expected to possess cooperative and communication skills and abilities as well as an aptitude for client services. International networking and the shared use of GIS data are also making cooperative skills more of a must. But those engaged in land surveying tasks also need to be able to work and take decisions independently.

Working in the land surveying sector has nothing to do with mass production. Taking measurements and setting out locations on land (monumentation) outdoors are tasks that are undertaken with reference to plan drawings and documents on work sites that vary in terms of their surroundings, content and conditions. Furthermore, indoor work is unique to each case, as is the information to be processed. The range of tasks is diverse, and employees can have an influence on working arrangements. The diverse nature of the work requires the ability to adapt to changing circumstances, comprehensive information management skills, a good knowledge of working methods, and the skills necessary to use the equipment involved and to solve problems.

The land surveying sector is developing fast. Legislation governing the work and the standards set for accuracy and content are constantly changing as society changes. Technological developments result in new measuring equipment and IT applications. Social developments also create completely new areas of work that call for new working methods to be evolved, the use of equipment to be studied or new information systems to be developed. Actors in the field are expected to be proactive, responsible and willing to develop their professional skills continuously. They are also required to show an interest in following developments in land surveying both at home and abroad.

Traditionally, the work involved in this sector has been based in Finland, though now more and more is international in its nature. Owing to Finland's bilingual status, some tasks have to be undertaken using either one of the country's official languages (Finnish or Swedish). In the broader context, the Finnish land surveying sector is operating in the global economy, with a growing emphasis on internationalisation and globalisation. International agreements, data sources and collaborations are part of this development. Internationalisation also has a significant effect on the everyday existence of purely local actors. To succeed, employees have to know how to make use of international data sources and become involved in international activities. International and national networking and successful cooperation in both Finnish and international projects rely on a respect for others, including clients, an awareness and appreciation of the nature of their work, traditions and cultural environments, and a healthy approach to equality and tolerance.

The professional ethics associated with the land surveying sector are based on high levels of professional skill, its continuous development, an aptitude for customer service and cooperation, a sense of fairness and equality, reliability, diligence, and an acceptance of responsibility for the quality of the services, work and products involved. Guiding principles in the field include economy, a client-focused approach, reliability and high standards of quality.

9.2 QUALIFICATION SPECIFIC HEALTH REQUIREMENTS IN VOCATIONAL UPPER SECONDARY EDUCATION AND TRAINING

Guidelines for the admission of students into training leading to a vocational upper secondary qualification are set in Section 27 of the Act on Vocational Education and Training. A person, whose illness or injury is likely to prevent him/her participating in training, cannot be admitted as a student. Student admission into vocational education can only be limited when the illness, objectively assessed, prevents studies or would endanger the safety of the student or others. The practical problems an

illness or injury causes to studies must primarily be solved using teaching arrangements and student welfare services.

An applicant is to provide education provider such information on his/her health condition as the admission process requires. Education provider must also make sure that the health condition of the person admitted is such that he/she can also cope with on-the-job learning in a way that working in the tasks in the field and achieving the qualification skills requirements presuppose.

From the point of view of a student's legal protection it is justified that he/she is not admitted to a study programme the future working tasks of which his/her health would not allow. When deciding who is admitted the various tasks related to the professions and work must be taken into consideration. It is possible that there are modules in a qualification that presuppose different health requirements and thus allow a student to make individual decisions on how to complete the training.

For student admission to have the best possible result from the student's point of view, education provider must inform applicants of the requirements of the vocational upper secondary qualification or vocational field as well as of possible health risks in the Guide for Applicants and during student admission process. Applicant's own description of his/her health condition or treatment of illness is most often enough in the admission situation.

If the legislation on or special features of the training sector or qualification in question require a person admitted into the institution to present a doctor's certificate on his/her health, it is enough that the certificate states the student is suitable for the vocational field. Student admission is conditional until such a doctor's certificate has been presented.

Student's illness or injury must not stop his/her studies or lead to a rash decision to change of profession or training sector. The practical problems an illness or injury causes in training must primarily be solved using individual teaching arrangements and personalisation that meet the student's needs. Student counselling, student support, instructing on the use of ergonomic work methods and aids facilitate completing the training. When a student falls ill or is injured cooperation between student welfare services and occupational health care at workplaces is absolutely necessary.

In all situations where personal data specified as sensitive in the Personal Data Act, such as information on the student's state of health, the education and training provider must observe care and good information processing practice required in the provisions.

Work, education and training in the land survey sector require the student or candidate to have an adequate level of physical fitness. He or she must not have congenital or acquired illnesses that would risk his or her own health, or that of persons working nearby.

9.3

VOCATIONAL SKILLS REQUIREMENTS, TARGETS OF ASSESSMENT AND GENERAL ASSESSMENT CRITERIA

Determining the skills requirements as well as the targets of assessment and general assessment criteria are to help education providers when drawing up curricula for modules that are not determined in the national core curriculum.

Vocational modules are formed according to and named after work entities. Skills requirements are described as concrete work outputs. Assessment criteria are determined for three levels: Satisfactory 1, Good 2 and Excellent 3.

The following criteria are meant as guidelines so that they are applied according to the objectives of core subjects and the skills requirements set for vocational modules. The criteria proposed are always portrayed against the requirements of the qualification module in question, which is to say that the work described in the criteria always means work contained in the module concerned.

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA ON A GENERAL LEVEL		
	Satisfactory 1	Good 2	Excellent 3
1. Mastering the work process	Student		
Planning one's own work, self-assessment of performance and development of one's activities.	plans his/her work but need instruction in new situation or working environment changes	plans his/her own work	plans independently work assignments and tasks he/she is responsible for
	assesses the success of his/her performance	assesses the success of his/her performance while working and copes with new and changing situations without help	assesses the success of his/her performance, justifies the assessment and assesses and develops his/her work methods and environment

Performance, independence and responsibility of work package.	performs in familiar work assignments	considers the work entity while working (e-g- where to start, where to finish and what tools and equipment to use etc.)	considers the work entity in the working environment and his/her own work as part of it
	work so that the outcome can be accepted as fulfilling the work plan and quality objectives	works so that the outcome includes some of the special requirements of the work assignment	works according to the special requirements of the workplace so that the outcome is in accordance with the objectives set
	need occasional guidance to advance in work phases	advances fluently from one work phase to another	advances systematically and fluently in his/her work adjusting it to other activities in the working environment
	follows working instructions, working hours, agreements and negotiates on discrepancies	completes given assignments independently and takes care of his/her assignments from start to finish and assumes responsibility for his/her own part of the work	spontaneously completes duties other than those assigned in his/her area of responsibility

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA ON A GENERAL LEVEL		
	Satisfactory 1	Good 2	Excellent 3
2. Mastering the work method, equipment and material	Student		
Choice and use of work method, equipment and materials that suit the assignment and work environment.	uses the most common work methods, equipment and materials related to his/her work in repeating work situations, but needs some instruction (procedures, equipment and materials are defined by qualification module)	uses work methods, equipment and materials related to his/her work independently in work situations	chooses the most suitable work methods, equipment and materials and uses them skilfully in various work situations


TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA ON A GENERAL LEVEL		
3. Underpinning knowledge	Satisfactory 1	Good 2	Excellent 3
Possession and application of the knowledge needed at work	Student uses the knowledge that is the basis for the most common procedures, equipment and materials needed in repeating work situations (i.e. the procedures, equipment and materials that have been defined in section 2), but needs guidance in acquiring the knowledge and applying it	searches and uses independently information needed at work	searches and uses information independently in his/her work in various situations and justifies the work-related decisions on the basis of the information gathered

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA ON A GENERAL LEVEL		
4. Key competences for lifelong learning: a) The four key competences to be assessed in their own group in Point 4	Satisfactory 1	Good 2	Excellent 3
Learning and problem solving	searches for information under instruction	searches for information according to instructions	searches for information independently
Own competence as an employee and work development, problem solving as well as making choices and decisions.	plans his/her work but needs instruction in new situations or when the work environment changes	plans his/her work and assesses its success while working	plans the assignments he/she is responsible for independently and assesses his/her competence and the success of the work and also justifies the assessment
	assesses the success of his/her work	accepts feedback and acts according to it	assesses and develops his/her work methods and work environment
	cope with familiar situations but needs instruction and support in change and option situations	cope with change and option situations spontaneously	develops his/her actions on the basis of feedback
			acts independently in different situations in a way that suits the situations and finds alternative procedures to his/her actions

<p>Interaction and cooperation</p> <p>Actions in interactive situations and cooperative abilities.</p>	<p>abides given instructions on interactive situations in his/her own learning and working environment</p>	<p>considers the situation in his/her learning and working community in different interactive situations</p>	<p>expresses him-/herself clearly and brings forth different viewpoints constructively</p>
	<p>completes the work assignments he/she is responsible for but needs instruction from time to time</p>	<p>completes the work assignments he/she is responsible for spontaneously</p>	<p>acts responsibly, cooperatively and equally with different people as a member of a work community and group</p>
	<p>works in a familiar work community and group and asks for help from the others when needed</p>	<p>works with different people in a work community and group</p>	<p>supports and helps others and also takes into account the next work phase and employee in his/her work</p>
<p>Vocational ethics</p> <p>Activities based on vocational ethics, professional value basis and the agreements made.</p>	<p>abides the ethical instructions and timetables given</p>	<p>abides the given ethical instructions, agreements and decrees as well as timetables</p>	<p>acts according to the values in the work community, ethical instructions, agreements and regulations in variable situations and also keeps to timetables</p>
<p>Health, safety and ability to function</p> <p>Actions that maintain health and safe operations and maintain the ability to function.</p>	<p>abides the given safety instructions and does not endanger him- /herself or others</p>	<p>abides the work community's instructions and takes into account the safety of the members of the work community and working environment</p>	<p>abides the work community's instructions and takes into account the safety of the members of the work community and working environment</p>
	<p>ensures safety in accordance with instructions</p>	<p>ensures safety</p>	<p>ensures safety and reports on dangers and risks he/she observes</p>
	<p>uses safely protective equipment, tools and work methods as instructed</p>	<p>uses protective equipment, tools and work methods safely</p>	<p>uses protective equipment, tools and work methods safely</p>
	<p>works ergonomically in most situations</p>	<p>works ergonomically</p>	<p>uses safe, variable work methods, which do not cause excessive workload while taking ergonomics into account</p>
<p>Are included in the objectives and assessment criteria of the core subjects , Psychological education (1 credit) and Health education (1 credit). Respective skills requirements and assessment criteria for health, safety and ability to function are drawn up for every vocational qualification if needed.</p>			

TARGETS OF ASSESSMENT	ASSESSMENT CRITERIA ON A GENERAL LEVEL		
4. b) Rest of the key competences for lifelong learning	Satisfactory 1	Good 2	Excellent 3
Initiative and entrepreneurship target-oriented, economic and productive operations and self management.	Student Are included in the objectives and assessment criteria of the core subjects , social, business and labour-market subjects (1 credit) and also in the skills requirements and assessment criteria of the entrepreneurship part that is included in the skills requirements of the vocational modules. In addition, when necessary, skills requirements and assessment criteria for the vocational modules of each qualification have been drawn up.		
Sustainable development Observing technological, economic, social and cultural principles.	works and acts taking sustainable development into account under instruction	works and acts taking sustainable development into account	works and acts independently taking sustainable development into account and takes up development needs
Aesthetics Taking aesthetics into account while working	works according to the aesthetic principles, pleasantness of work environment and other factors that affect the appearance of the end result under instruction	works according to the aesthetic principles, pleasantness of work environment and other factors that affect the appearance of the end result	makes versatile use of aesthetic principles in the field – works to promote the pleasantness of the working environment and other factors that impact the appearance of the end result
Communication and media skills Objective recognition, observation and interpretation of the media products and use of media and information technology	Are included in the objectives and assessment criteria of the core subjects Mother tongue (4 credits). In addition, when necessary, skills requirements and assessment criteria for communication and media skills in compliance with the requirements of each vocational field have been drawn up.		
Mathematics and natural sciences Numeracy required at work and knowledge of the laws of physics needed	Are included in the objectives and assessment criteria of the core subjects Mathematics (3 credits), Physics and chemistry (2 credits). In addition, skills requirements and assessment criteria for mathematics and natural sciences in compliance with the requirements of each vocational field have been drawn up.		

<p>Technology and information technology Use of technology and information technology in the vocational</p>	<p>uses common technical and information technical systems that are needed in his/her profession, in repeating work situations, but sometimes needs instruction</p>	<p>uses common technical and information technical systems that are needed in repeating work situations</p>	<p>uses common technical and information technical systems that are needed in repeating work situations variedly</p>
<p>field and taking into account the benefits, limitations and risks of</p>	<p>chooses the machinery and equipment needed, under instruction and recognises the risks</p>	<p>chooses the machinery and equipment needed and recognises the risks</p>	<p>chooses the machinery and equipment needed independently and recognises the limitations and risks</p>
<p>technology</p>	<p>Information technology is included in the objectives and assessment criteria of core subjects (social, business and labour-market subjects). In addition, skills requirements and assessment criteria for technology and information technology in compliance with the requirements of each vocational field have been drawn up.</p>		
<p>Active citizenship and different cultures Participating in community activities and decision making with people from different backgrounds and observing the rights and obligations as an employee and citizen and abiding equality regulations.</p>	<p>Are included in the objectives and assessment criteria of the core subjects social, business and labour-market subjects (1 credit) and also Mother tongue (4 credits). In addition, when necessary, the skills requirements and assessment criteria for this key skill have been drawn up considering the skills requirements of each qualification.</p>		



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