NATIONAL CORE CURRICULUM FOR
UPPER SECONDARY
VOCATIONAL EDUCATION AND TRAINING
AND REQUIREMENTS OF
THE COMPETENCE-BASED QUALIFICATION

VOCATIONAL QUALIFICATION IN
FORESTRY

STUDY PROGRAMME IN FORESTRY,
FOREST WORKER

STUDY PROGRAMME IN FOREST MACHINERY,
FOREST MACHINE OPERATOR

STUDY PROGRAMME IN THE MULTIPLE USE OF
FORESTS,
FOREST ECOSYSTEM WORKER

FINNISH NATIONAL BOARD OF EDUCATION 2001
Since the issue of Regulation No. 7/011/2000 of the National Board of Education of 13th March 2000 on the Vocational Qualification in Forestry, the Regulation has been amended by the following statutes:

Regulations of the National Board of Education
No. 42/011/2001 of 1st August 2001 on Physical Education and Health Education
No. 34/011/2002 of 19th June 2002 on Amendment of the National Core Curricula for Upper Secondary Vocational Education and Training and Requirements of Competence-based Qualifications
No. 28/011/2004 of 27th August 2004 on Co-operation between Home and School and Student Welfare Services

Decree of the Ministry of Education
No. 216/2001 of 1st March 2001 on Upper Secondary Vocational Qualifications

Act
No. 479/2003, Section 44a on Reassessment and Rectification of Assessment

Government Decree
No. 616/2001 on Amendment of Section 2 of the Government Decision on the Structure of Qualifications and the Core Subjects in Upper Secondary Vocational Education and Training

The changes required by the new provisions have been added to this English translation.
The Finnish National Board of Education has decided on the National Core Curriculum for the Vocational Qualification and Requirements of the Competence-based Qualification in Forestry, which shall be observed as from 1st August 2001.

The education provider shall draw up and approve a curriculum for education and training in compliance with the provisions of this National Core Curriculum and Requirements of the Competence-based Qualification.

The education provider, the organiser of the competence tests and the Qualification Committee may neither fail to comply with nor deviate from the National Core Curriculum and Requirements of the Competence-based Qualification.

In the competence-based qualification system, the competence tests to demonstrate vocational skills shall be arranged as part of the preparatory training. For competence-based qualifications, provisions governing the information included on certificates and the certificate forms as well as the guidelines for drawing up individual study plans shall be issued separately.

Director General    Jukka Sarjala

Counsellor of Education    Pekka Karakoski

ANNEXE Informative Appendix
# CONTENTS

## PART I NATIONAL CORE CURRICULUM

1. **ROLES AND OBJECTIVES OF VOCATIONAL EDUCATION AND TRAINING**
   1.1 Upper Secondary Vocational Education and Training and Their Purpose 9
   1.2 Common Emphases and Core Skills Common to All Fields 10
   1.3 Objectives of the Vocational Qualification in Forestry and Its Study Programmes 12

2. **COMPOSITION OF THE STUDIES AND THE VOCATIONAL QUALIFICATION IN FORESTRY**
   2.1 Composition of the Vocational Qualification in Forestry 14
   2.2 Composition of Studies 15

3. **OBJECTIVES, CORE CONTENTS AND ASSESSMENT OF STUDIES**
   3.1 Objectives, Core Contents and Assessment of the Core Subjects 18
   3.1.A Compulsory Studies 18
      3.1.1 Native Language
         3.1.1.1 Native Language, Finnish 18
         3.1.1.2 Native Language, Swedish 20
         3.1.1.3 Native Language, Sami 21
         3.1.1.4 Native Language, Sign Language 22
         3.1.1.5 Native Language, Own Native Language for Foreign-language Students 23
         3.1.1.6 Native language, Finnish/Swedish as a Second Language 25
      3.1.2 Other National Language
         3.1.2.1 Other National Language, Swedish 28
         3.1.2.2 Other National Language, Finnish 29
      3.1.3 Foreign Language
         3.1.3.1 Foreign Language, A Language 31
         3.1.3.2 Foreign Language, B Language 33
      3.1.4 Mathematics 34
      3.1.5 Physics and Chemistry 35
      3.1.6 Social, Business and Labour-market Subjects 37
      3.1.7a Health Education 38
      3.1.7b Physical Education 39
      3.1.8 Arts and Culture 40
      3.1.B Optional Studies 42
         3.1.9 Optional Advanced Studies in Compulsory Subjects 42
         3.1.10 Environmental Studies 42
         3.1.11 Information and Communications Technology 43
         3.1.12 Ethics 44
         3.1.13 Other Cultures 45

## PART II NATIONAL NON-CORE CURRICULUM
3.1.14 Psychology 47
3.1.15 Entrepreneurship 48

3.2 Objectives, Core Contents and Assessment of Vocational Studies and On-the-job Learning 51

3.2.A Common Vocational Studies of the Qualification 51
3.2.1 Basic Forestry Skills 51
3.2.2 Basic Timber Harvesting Skills 52
3.2.3 Basic Skills in the Multiple Use of Forests and in Environmental Protection 54

3.2.B Vocational Studies of the Study Programmes 55

STUDY PROGRAMME IN FORESTRY
3.2.4 Forestry 55
3.2.5 Timber Harvesting 57
3.2.6 Environmental Protection 59

STUDY PROGRAMME IN FOREST MACHINERY
3.2.7 Entrepreneurship and Communication 60
3.2.8 Machinery Structures and Maintenance 61
3.2.9 Planning of Mechanised Timber Harvesting 62
3.2.10 Forest Haulage 62
3.2.11 Forestry Tractor Technology 63
3.2.12 Mechanised Timber Production 64
3.2.13 Technology of Timber Production Machinery 65
3.2.14 Maintenance, Servicing and Repair Technology 66
3.2.15 Timber Transport by Lorry 67
3.2.16 Timber Lorry Technology 68

STUDY PROGRAMME IN THE MULTIPLE USE OF FORESTS
3.2.17 Knowledge of Nature 69
3.2.18 Multiple Use of Forests 70
3.2.19 Environmental Protection and Nature Conservation 71
3.2.20 Customer Service 73

OPTIONAL STUDIES IN ALL STUDY PROGRAMMES 74
3.2.21 Forestry Entrepreneurship 74
3.2.22 Utilisation and Processing of Wood 75
3.2.23 Forest Haulage Skills 75
3.2.24 Fuel Wood Harvesting 76
3.2.25 Mechanised Forest Improvement Work 77
3.2.26 Forestry and Timber Harvesting 78
3.2.27 Nature Tourism 79
3.2.28 Basics of Silviculture 80
3.2.29 Other Optional Studies 81

3.3 Objectives, Core Contents and Assessment of Free-choice Studies 81
3.4 Objectives of Student Counselling 81
3.5 Objectives and Assessment of the Final Project 82
The upper secondary vocational qualification may be completed in upper secondary vocational education and training in accordance with the National Core Curriculum or as a competence-based qualification in accordance with the appropriate requirements. Part I details the provisions for the National Core Curriculum and Part II contains the provisions for the Requirements of the Competence-based Qualification. The Appendix contains information on the premises for elaborating the National Core Curriculum.
ROLES AND OBJECTIVES OF VOCATIONAL EDUCATION AND TRAINING

1.1 UPPER SECONDARY VOCATIONAL EDUCATION AND TRAINING AND THEIR PURPOSE

In accordance with the provisions of the Vocational Education and Training Act (630/1998, Sections 2 and 5) and the Government Decision (213/1999), upper secondary vocational education and training shall provide students with extensive basic vocational skills for various assignments in their field and more specialised competence and vocational skills as required by working life in one sector of the qualification. This shall enable them, once they have qualified, to find placements in working life, to perform various tasks in their field even in changing conditions, and to develop their vocational skills throughout their lives. The correspondence of education and training with the vocational skills requirements of working life shall be ensured through co-operation with economic life and workplaces. Education and training shall promote employment and opportunities to become self-employed.


Education and training shall encourage students to take up interests and to develop their personalities and shall also support their capabilities for further education by providing them with diverse free-choice studies. Education and training shall create an open and positive learning environment, which consolidates life skills and where students develop into responsible and dutiful citizens and members of their working community.

Education and training shall pay attention to students with different learning capabilities and objectives and, where necessary, develop support measures in co-operation with homes and outside experts. The positive individual development and healthy self-esteem of students shall be supported.
Education and training shall promote democracy, equality between men and women in all sectors of society, as well as general equality in working life and society.

1.2 COMMON EMPHASES AND CORE SKILLS COMMON TO ALL FIELDS

1 COMMON EMPHASES

Education and training shall provide the capabilities, which increase general vocational learning and civic skills required in all fields, and which enable students to follow changes in society and working life and to function in changing conditions. Education and training shall provide students with capabilities for:

• internationality;
• promotion of sustainable development;
• utilisation of technology and information technology;
• entrepreneurship;
• high-quality and customer-focused activity;
• consumer skills;
• management of occupational health and safety.

The objective of the growth into internationality shall be for students to manage in a multi-cultural environment and be tolerant and capable in languages, in order to be able to participate in student exchanges and to find placements in the internationalising labour market.

The objective of the promotion of sustainable development shall be for students to know the principles of sustainable development and become motivated to promote them when studying, at work and as citizens. They shall know environmentally positive working and operating methods and act accordingly and shall, in particular, recognise common hazardous wastes and be able to treat them accordingly. They shall value the diversity of nature, understand the economic, social and cultural dimensions of sustainable development and know how to promote them.

In order to develop the utilisation of technology and information technology, the objective shall be for students to possess the basic skills required in an information society and the capabilities to utilise information and communications technologies as well as other forms of technology in a diverse manner at work and as citizens. Students shall understand the effects of technological developments on their own field and its future, and know how to apply new technologies in their work.

The objective of the development of entrepreneurship shall be for students to evolve into proactive, conscientious, self-assured and
resourceful workers, self-employed people or entrepreneurs, who value their work.

The objective of developing towards high-quality and customer-focused activity shall be for students to be able to master the required quality management methods, which are most commonly applied in their occupational field. They shall know how to take into account customers’ expectations and individual needs and to manage various customer service situations.

The objective of consumer skills shall be for students to be able to take the obligations of consumer legislation into account and to function at work and as citizens in compliance with the rights, duties and responsibilities of consumers. Students shall know how to act as consumers and workers so as to promote the national economy.

The objective of management of occupational health and safety shall be for students to be conversant with and comply with the occupational safety regulations and instructions for their field. They shall appreciate a safe, healthy and pleasant working environment and work to develop it. They shall be able to recognise dangers and health hazards at work and in the working environment, as well as to protect themselves against them and prevent them. They shall be able to design an ergonomically healthy working environment for themselves. They shall know how to look after their own health and to maintain their working and functional ability.

2 CORE SKILLS COMMON TO ALL FIELDS

The objective of education and training shall be for students to develop the following capabilities required in all fields:
• learning skills;
• problem-solving skills;
• interaction and communication skills;
• co-operation skills;
• ethical and aesthetic skills.

In order to develop learning skills, education and training shall provide students with capabilities for lifelong learning and a desire for self-development. Students shall obtain capabilities to assess their own learning and competence and to plan their studies. They shall obtain capabilities to acquire, analyse and assess information and to apply their existing knowledge in changing situations.

In order to develop problem-solving skills, education and training shall provide students with capabilities to function at work and in problematic situations in a flexible, innovative and creative manner.
1. ROLES AND OBJECTIVES OF VOCATIONAL EDUCATION AND TRAINING

In order to develop interaction and communication skills, education and training shall provide students with capabilities to cope in various interactive situations in working life. Students shall obtain capabilities to manage negotiation situations and to use oral and written communication as well as information technology in various interactive and communication situations.

In order to develop co-operation skills, education and training shall provide students with capabilities to function with different people and as team members, as well as to be flexible in human relations and to consider other people. They shall be able to recognise their own and other people’s moods and to take account of these in their actions in a constructive manner.

In order to develop ethical and aesthetic skills, education and training shall provide students with capabilities that enable them to deal with and resolve ethical problems and to be aware of their own values and of the aesthetic values based on culture, and to take account of these in their actions. They shall be able to function in a responsible and fair manner and in accordance with what has been agreed. They shall be able to adhere to occupational ethics in their work, including confidentiality concerning their customers, data protection and statutes governing consumer protection.

1.3 OBJECTIVES OF THE VOCATIONAL QUALIFICATION IN FORESTRY AND ITS STUDY PROGRAMMES

Those who have completed the Vocational Qualification in Forestry shall possess extensive skills and basic knowledge for forestry work assignments, so as to be able to perform ordinary basic work in forestry as well as work assignments relevant to their own study programme. They shall perceive the significance of their own work as part of the functional field of forestry.

Those who have completed the Vocational Qualification in Forestry shall be sufficiently well acquainted with forest nature to be able to take the safeguarding of the diversity, productivity and renewability of forests as well as the preservation of the habitats of different species into account in their work, and they shall also be familiar with other environmental impacts of their work. They shall be able to work in an economical, productive and customer-focused manner; they shall also have an idea of the prerequisites for profitable business activities. They shall be able to function as members of working groups and teams as required within their occupation and adapt to their working community and shall also be capable of working in an independent and responsible manner. They
shall be familiar with organisations and functions in the forestry field and with their key tasks.

Those who have completed the Vocational Qualification in Forestry shall be familiar with the requirements of occupational safety and ergonomics related to their work so as to be capable of attending to their physical and mental condition. They shall assume the correct attitude towards their work and shall also possess capabilities for the continuous development of their skills and knowledge. They shall be familiar with the culture of their occupational field and immediate surroundings and appreciate it and be able to manage in a multicultural environment so as to also cope on the international labour market.

Those who have qualified as *Forest Workers* from the Study Programme in Forestry shall possess the capabilities to work as employees and entrepreneurs in forestry, timber harvesting and wood-based energy production in compliance with the principles of forestry that is sustainable in terms of ecology and environmental management. The work of Forest Workers emphasises work assignments and sites requiring specialised vocational skills. They are required to be independent and capable of proactive action and decision-making. They shall possess knowledge of entrepreneurship, marketing and customer service and shall also have communication and teamwork skills.

Those who have qualified as *Forest Machine Operators* from the Study Programme in Forest Machinery shall know how to operate, drive and maintain machinery and vehicles used in timber production, harvesting and transportation. People specialising as competent operators or as maintainers and fitters of forestry tractors, timber production machinery or timber lorries are required to possess plenty of independent competence and vocational skills, such as skills in and knowledge of the operation and maintenance of machinery, environmental management and protection, silviculture, timber production and quality management as well as communication and public relations.

Those who have qualified as *Forest Ecosystem Workers* from the Study Programme in the Multiple Use of Forests shall know how to carry out forestry and environmental management work at special sites, where nature conservation, landscape management and other environmental management considerations need to be taken into account. They shall know how to plan and carry out work related to multiple use. They shall know how to work in field assignments in forest planning and forest and environmental research as well as game and forestry research. They shall possess knowledge of entrepreneurship, marketing and customer service and shall also have communication and teamwork skills.
2.1 COMPOSITION OF THE VOCATIONAL QUALIFICATION IN FORESTRY

The composition of the qualification, the general objectives, the core subjects and their scope have been set out in Government Decree (213/1999); the scope of the qualification, the upper secondary vocational qualifications, the study programmes and the qualification titles in the Decree of the Ministry of Education (216/2001 of 1st March 2001); the scope of the studies in the Vocational Education and Training Decree (811/1998, Section 2); and accreditation and duration of studies in the Vocational Education and Training Act (630/1998, Sections 30 and 31).
### 2.2 COMPOSITION OF STUDIES

**VOCATIONAL QUALIFICATION IN FORESTRY** 120 CREDITS

<table>
<thead>
<tr>
<th>CORE SUBJECTS</th>
<th>20 CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compulsory study modules 1–8</td>
<td>16 credits</td>
</tr>
<tr>
<td>Optional study modules 1–15</td>
<td>4 credits</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VOCATIONAL STUDIES</th>
<th>90 CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studies shall include at least 20 credits of on-the-job learning</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMMON VOCATIONAL STUDIES OF THE QUALIFICATION</th>
<th>25 CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study modules 1–3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VOCATIONAL STUDIES OF THE STUDY PROGRAMMES</th>
<th>65 CREDITS</th>
</tr>
</thead>
</table>

**STUDY PROGRAMME IN FORESTRY**

| Compulsory study modules 4–6 | 55 credits |
| Optional study modules 21–29 | 10 credits |

**STUDY PROGRAMME IN FOREST MACHINERY**

| Compulsory study modules 7–9 | 20 credits |
| Optional study modules 10–16, 21–29 | 45 credits |
| of which one of the following combinations must be selected: 10 and 11; 12 and 13; 14 and 11; 14 and 13; or 15 and 16; and an additional 10 credits from study modules 21–29 |

**STUDY PROGRAMME IN THE MULTIPLE USE OF FORESTS**

| Compulsory study modules 17–20 | 55 credits |
| Optional study modules 21–29 | 10 credits |

**FREE-CHOICE STUDIES** 10 CREDITS

Studies shall include student counselling worth at least 1.5 credits and a final project worth at least 2 credits. One credit is equivalent to 40 hours of a student’s work.
### Composition of the Studies and the Vocational Qualification in Forestry

#### Study Modules in the Core Subjects

<table>
<thead>
<tr>
<th>Study Module</th>
<th>Compulsory</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Native language</td>
<td>4 credits</td>
<td>0–4 credits</td>
</tr>
<tr>
<td>2. Other national language</td>
<td>1 credit</td>
<td>0–4 credits</td>
</tr>
<tr>
<td>3. Foreign language</td>
<td>2 credits</td>
<td>0–4 credits</td>
</tr>
<tr>
<td>4. Mathematics</td>
<td>3 credits</td>
<td>0–4 credits</td>
</tr>
<tr>
<td>5. Physics and chemistry</td>
<td>2 credits</td>
<td>0–4 credits</td>
</tr>
<tr>
<td>6. Social, business and labour-market subjects</td>
<td>1 credit</td>
<td>0–4 credits</td>
</tr>
<tr>
<td>7a. Health education</td>
<td>1 credit</td>
<td>0–4 credits</td>
</tr>
<tr>
<td>7b. Physical education</td>
<td>1 credit</td>
<td>0–4 credits</td>
</tr>
<tr>
<td>8. Arts and culture</td>
<td>1 credit</td>
<td>0–4 credits</td>
</tr>
<tr>
<td>9. Optional advanced studies in compulsory subjects, see points 1–8 above</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Environmental studies</td>
<td></td>
<td>0–4 credits</td>
</tr>
<tr>
<td>11. Information and communications technology</td>
<td></td>
<td>0–4 credits</td>
</tr>
<tr>
<td>12. Ethics</td>
<td></td>
<td>0–4 credits</td>
</tr>
<tr>
<td>13. Other cultures</td>
<td></td>
<td>0–4 credits</td>
</tr>
<tr>
<td>14. Psychology</td>
<td></td>
<td>0–4 credits</td>
</tr>
<tr>
<td>15. Entrepreneurship</td>
<td></td>
<td>0–4 credits</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16 credits</strong></td>
<td><strong>4 credits</strong></td>
</tr>
</tbody>
</table>

Where Swedish is the language of instruction, the scope of studies in the other national language (Finnish) shall be 2 credits, in which case the respective scopes of compulsory and optional studies shall be 17 credits and 3 credits.

Where a student’s native language is neither Finnish nor Swedish, the education provider concerned may divide the compulsory studies into the native language and the other national language (total of 5 credits) in a way different from the provisions laid down in Section 2(2) of Government Decision 213/1999 and in Government Decree 616/2001 (see Chapter 5.4).
## VOCATIONAL STUDY MODULES

<table>
<thead>
<tr>
<th>Module Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Basic forestry skills</td>
<td>8</td>
</tr>
<tr>
<td>2. Basic timber harvesting skills</td>
<td>10</td>
</tr>
<tr>
<td>3. Basic skills in the multiple use of forests and in environmental protection</td>
<td>7</td>
</tr>
<tr>
<td>4. Forestry</td>
<td>25</td>
</tr>
<tr>
<td>5. Timber harvesting</td>
<td>20</td>
</tr>
<tr>
<td>6. Environmental protection</td>
<td>10</td>
</tr>
<tr>
<td>7. Entrepreneurship and communication</td>
<td>4</td>
</tr>
<tr>
<td>8. Machinery structures and maintenance</td>
<td>10</td>
</tr>
<tr>
<td>9. Planning of mechanised timber harvesting</td>
<td>6</td>
</tr>
<tr>
<td>10. Forest haulage</td>
<td>25</td>
</tr>
<tr>
<td>11. Forestry tractor technology</td>
<td>10</td>
</tr>
<tr>
<td>12. Mechanised timber production</td>
<td>25</td>
</tr>
<tr>
<td>13. Technology of timber production machinery</td>
<td>10</td>
</tr>
<tr>
<td>14. Maintenance, servicing and repair technology</td>
<td>25</td>
</tr>
<tr>
<td>15. Timber transport by lorry</td>
<td>25</td>
</tr>
<tr>
<td>16. Timber lorry technology</td>
<td>10</td>
</tr>
<tr>
<td>17. Knowledge of nature</td>
<td>8</td>
</tr>
<tr>
<td>18. Multiple use of forests</td>
<td>24</td>
</tr>
<tr>
<td>19. Environmental protection and nature conservation</td>
<td>17</td>
</tr>
<tr>
<td>20. Customer service</td>
<td>6</td>
</tr>
<tr>
<td>21. Forestry entrepreneurship</td>
<td>5</td>
</tr>
<tr>
<td>22. Utilisation and processing of wood</td>
<td>5</td>
</tr>
<tr>
<td>23. Forest haulage skills</td>
<td>5</td>
</tr>
<tr>
<td>24. Fuel wood harvesting</td>
<td>5</td>
</tr>
<tr>
<td>25. Mechanised forest improvement work</td>
<td>5</td>
</tr>
<tr>
<td>26. Forestry and timber harvesting</td>
<td>5</td>
</tr>
<tr>
<td>27. Nature tourism</td>
<td>5</td>
</tr>
<tr>
<td>28. Basics of silviculture</td>
<td>5</td>
</tr>
<tr>
<td>29. Other optional studies</td>
<td>10</td>
</tr>
</tbody>
</table>

## FREE-CHOICE STUDIES

See Chapter 3.3
3 OBJECTIVES, CORE CONTENTS AND ASSESSMENT OF STUDIES

3.1 OBJECTIVES, CORE CONTENTS AND ASSESSMENT OF THE CORE SUBJECTS

3.1.A Compulsory Studies

3.1.1 NATIVE LANGUAGE, 4 CREDITS

3.1.1.1 NATIVE LANGUAGE, FINNISH

Objectives and core contents, excellent level

Students shall be able to speak and function purposefully and appropriately in co-operative situations in a study and working community, such as in groups and teams, as well as in customer service situations. Students shall understand the central concepts, essential content and meaning of texts relating to forestry. In addition, they shall know how to distinguish between the main and secondary points, to analyse relationships between causes and effects, and to draw conclusions from what they have read. They shall be able to acquire information from different sources, using modern technologies. They shall adopt a critical approach towards information; in other words, they shall be able to select, assess and interpret information from different points of view and to convey it in spoken and written forms. Students shall be able to assess their own skills in the native language and to develop them continuously.

As members of study and working groups, students shall be able to take the floor, justify their opinions and proposals, actively listen to other people and clearly express their ideas. For their own part, they shall contribute to the creation of a good communication atmosphere and to the achievement of common goals. They shall be capable of polite and flexible conduct in verbal and non-verbal communication and be able to communicate appropriately in any given situation. Students shall also be able to interpret non-verbal communication. They shall show tolerance and equality towards different communicators and different ways of communication.
The core content comprises information management and assessment skills as well as interaction skills.

Students shall know how to use basic forestry terminology when operating in a working community and in customer service situations. They shall accustom themselves to oral and written forms of language use so as to be able to prepare the most common written assignments of their occupation and community, such as documents required in customer service, reports, memoranda, official letters and the written part of the final project, and to master oral communication situations, such as telephone transactions, discussions, negotiations and meetings, as well as oral accounts and reports. They shall know how to act when applying for a job and to prepare documents related to the job application process.

They shall know how to utilise forestry trade magazines and other communication media. They shall be able to convey information to others in an understandable form both orally and in writing. They shall be able to develop their communication and interaction skills continuously and to participate in the development of communication in their workplace.

The core content comprises functioning in language use situations of working life.

Students shall understand their linguistic roots. They shall understand the significance of language and culture in the development of their own identity, in their intellectual well-being as well as in the activities of staff and interest groups within their working community. They shall know how to acquire experiences and sensations that provide them with enrichment as users of literature, theatre, cinema and other such media. They shall know how to analyse and interpret even literary texts. They shall understand the distinctive characteristics of Finnish speech culture as well as the significance of the native language, bi- and multilingualism and multiculturalism so as to be able to take account of these in both private and working life communication situations.

The core content comprises knowledge of language and culture.
Assessment, satisfactory (S1)

Students shall
• understand that people speak and write in different ways in different situations and shall be able to adjust their own usage to different situations;
• understand the main ideas and the key concepts of texts related to their field and be able to use the basic concepts of forestry in their own language as well;
• know how to acquire information from different sources with guidance and in groups, know the main journals and non-fiction books in the forestry sector and, where necessary, be able to use library services and modern technologies to acquire and communicate information;
• know how to and have the confidence to speak up when requested to do so in discussions of study and working groups and be able to express their own ideas and opinions;
• be capable – at least to some extent – of taking other speakers into account and also be aware of the effects of non-verbal communication;
• know how to fill in the essential forms required as part of their work and to prepare a legible report;
• know how to introduce themselves and to present their point;
• know how to act appropriately in customer service situations;
• find a choice of literature, cinema or theatre that interests them;
• be capable of working with different people, even in a multicultural working community;
• be aware of their own mode of communication and be able to assess their own skills in the native language and to set objectives for their own development.

3.1.1.2 NATIVE LANGUAGE, SWEDISH

In Swedish-language education, the objectives and core contents required to achieve excellent level in the native language shall be the same as in Finnish-language education. However, the following shall be included in the last objectives, concerning language and culture:

Students shall know the status of the Swedish language in Finland and the differences between Swedish dialects spoken in Finland, the colloquial and the standard Swedish language. They shall understand the significance and advantage of the command of the standard Swedish language in working life.
Similarly, the following shall be added to Assessment, satisfactory (S1):

- Students shall know the status of the Swedish language in Finland and understand the significance of bilingualism and affinity between the Nordic peoples.

### 3.1.1.3 NATIVE LANGUAGE, SAMI

#### Objectives and core contents, excellent level

Students shall know the fundamental significance of language in terms of formation, creation and transfer of culture. They shall acquire functional bilingualism and master the jargon of forestry in the Sami language as well. The Sami cultural identity of students shall strengthen in both linguistic and cognitive terms.

Students shall have a strong linguistic identity so as to be able to develop their Sami language skills and to maintain contacts with the Sami culture. They shall be able to compare the characteristics of the Sami culture and language with the corresponding Finnish features. Students shall be conversant with Sami-language literature and Sami cultural traditions so as to take an interest in literature and the arts in the Sami language.

▲ The core content comprises

mastering the special characteristics of the Sami language and culture.

Students shall have a good command of the structure and grammatically correct usage of the Sami language and master the nuances of its oral expression in different communication situations. They shall be able to compare the foundations of the Sami language to its cognate language, Finnish. They shall master the orthography of the Sami language and be able to develop their written expression. Students shall be able to write grammatically correct Sami-language factual texts, such as information material, project plans, applications and letters. They shall develop their oral and written skills in the Sami language and their evaluative reading.

▲ The core content comprises

oral expression and writing skills in the Sami language for different purposes.

Students shall be able to communicate issues relating to their occupation in the Sami language. They shall have the capabilities to function in
different occupations in the forestry sector and to develop their vocational skills in the Sami language so as to be able to function in a corresponding occupation within the Sami culture. Students shall know the history and present-day conditions of the Sami sources of livelihood. They shall know how to acquire information from different media, and they shall possess the ability of critical thinking.

▲ The core content comprises
the command of the key concepts of forestry in the Sami language.

Assessment, satisfactory (S1)

Students shall
• recognise the significance of the Sami language and culture to their identity;
• know the essential special characteristics of the Sami language and culture;
• be able to produce essential Sami-language factual texts related to their work and occupation;
• know how to use the Sami language orally in different situations;
• be capable of using the key Sami-language concepts related to their occupation so as to have the capabilities to function in the most essential work assignments in forestry and to develop vocational competence in their own language.

3.1.1.4 NATIVE LANGUAGE, SIGN LANGUAGE

Objectives and core contents, excellent level

Students shall be able to express themselves in different communication situations using sign language with appropriate nuances. They shall be able to compare the special characteristics of sign languages with spoken languages. They shall understand the distinctive characteristics of Finnish sign language in relation to other national sign languages and know how to act with foreign-language deaf people.

▲ The core content comprises
good expression in sign language in different communication situations.

Students shall be able to strengthen their linguistic identity and to develop their sign language skills in order to maintain contacts with the cultural sphere of deaf people and those using sign language. They shall know
how to develop sign language cultural traditions. They shall be able to compare the characteristics of deaf people’s culture and Finnish sign language with those of Finnish culture and the Finnish language.

▲ The core content comprises knowledge and development of the special characteristics of sign language and sign language cultural heritage.

Students shall know how to function bilingually in their occupation, which also requires them to have a good command of the jargon used in their field of study in sign language. They shall be able to communicate about subjects related to their occupation in Finnish sign language. They shall know how to develop their vocational skills using sign language. Students shall be capable of acquiring further information on their own occupational field in their own language and to critically compare the information that they have received.

▲ The core content comprises communication of issues related to one’s occupation in Finnish sign language and development of vocational competence in sign language.

Assessment, satisfactory (S1)

Students shall know how to
- express themselves in a sign language community in the most common language use situations;
- recognise the essential special characteristics of sign language and sign language culture;
- use the key concepts related to their own occupation so as to be able to function in their work and to develop their vocational competence in their own language.

3.1.1.5 NATIVE LANGUAGE, OWN NATIVE LANGUAGE FOR FOREIGN-LANGUAGE STUDENTS

Objectives and core contents, excellent level

Students shall achieve functional bilingualism and command the jargon of their field of study in their own native language as well. The objective is to strengthen the cultural identity and linguistic and cognitive development of students.
Students shall have a strong linguistic identity so as to be able to retain their linguistic and cultural ties to the culture, in which they have grown up. They shall have knowledge of the characteristics of their own culture and language, in order that they can compare these with the corresponding Finnish characteristics. Students shall familiarise themselves with the literature and cultural traditions of their own native language and culture so that they may take an interest in literature and other arts in their own native language.

▲ The core content comprises

knowledge of the special characteristics of one's own language and cultural heritage.

Students shall be conversant with the structure and grammatical usage of their own native language and command different nuances of oral expression in their language. They shall also become accustomed to comparing the foundations of their language with the Finnish/Swedish language. They shall be active in using their spoken and written native language skills. Students shall be aware of the various opportunities to use their native language and its variations in their linguistic area and shall become accustomed to comparing their native language use situations with those of the Finnish language.

▲ The core content comprises

writing and oral expression skills in one's native language, as far as possible, for different purposes.

Students shall know how to communicate the issues of forestry in their own native language. They shall have capabilities to develop their vocational skills in their own language, where necessary, so as to be able to function in a corresponding occupation within their own culture. Students shall also be able to acquire further information from different media in their own language and to critically compare different sources.

▲ The core content comprises

knowledge of the key concepts of forestry in one's own native language.

Assessment, satisfactory (S1)

Students shall

• know the most important characteristics of their own language and culture and their cultural roots;
• know how to express themselves orally in the most common language use situations in their cultural community;
• be able to use the key concepts related to their occupation so that they have the capabilities to develop their vocational competence in their native language.

3.1.1.6 NATIVE LANGUAGE, FINNISH/SWEDISH AS A SECOND LANGUAGE

Objectives and core contents, excellent level

Students shall understand the main contents of oral communication in Finnish/Swedish and be able to follow the subject matter dealt with in studies without difficulty, as well as be able to participate in training. They shall understand the main contents of written learning material and be able to use them to progress in their studies. They shall familiarise themselves with literature and different types of text in Finnish/Swedish and, as far as possible, in their native language, in order to obtain impulses and sensations from them. They shall be aware of the most common non-verbal means of communication in Finnish culture, recognise situational and social variations in the Finnish/Swedish language and know how to use the linguistic means suitable for different communication situations and text types. They shall be able to participate in social interaction and acquaint themselves in interests, as well as be able to follow public discussions relevant to themselves and their occupation in the press and other media.

▲ The core content comprises understanding the main ideas in oral and written communication.

Students shall be able to use language in everyday situations both orally and in writing. They shall recognise the key special characteristics of Finnish/Swedish pronunciation that have an impact on meaning and shall be conversant with Finnish/Swedish intonation. They shall become accustomed to producing different types of written material and learn to formulate their thoughts understandably in Finnish/Swedish in writing as well. They shall produce different types of text confidently, learn the use of texts necessary in their occupation and manage central forms of transactional writing. Students shall know the central structures of the Finnish/Swedish language and be able to use the language confidently both orally and in writing. They shall recognise the meanings of more difficult Finnish/Swedish structures in context. They shall be conversant with the basics of the Finnish/Swedish orthographic system. They shall
become accustomed to examining the differences and similarities between their native language and the Finnish/Swedish language.

▲ The core content comprises
knowledge and use of the basic structures of the Finnish/Swedish language and production of understandable oral and written messages.

Students shall command the spoken and written standard Finnish/Swedish language and also master the jargon of forestry in order to be able to participate in education and training in an equal, active and independent manner, to carry out their occupation, as well as to develop themselves and to function as members of society.

Students shall know the terminology and phrases used in forestry. They shall understand working and user instructions necessary in forestry in both oral and written form and also understand the occupational safety regulations in their field. They shall know how to express the key points of their occupational field in the Finnish/Swedish language in both oral and written form and, as far as possible, in their native language as well. Students shall be able to adjust their usage appropriately for each communication situation within their working community and in customer service situations and know how Finns express politeness. They shall be conversant with the central features of Finnish working culture and be able to function accordingly. They shall be able to consolidate their occupational identity and pride with the aid of Finnish/Swedish language skills.

▲ The core content comprises
good linguistic usage in forestry.

Students shall understand the significance of the native language and bilingualism. They shall know their own roots and appreciate their own culture and also use their native language confidently, thus developing their own self-esteem and identity. They shall be conversant with the central workings of Finnish society and familiarise themselves with Finnish culture. They shall familiarise themselves with their civic rights and duties in the Finnish/Swedish language. They shall understand interaction between cultures and reasons for cultural conflicts and also deal with them in a constructive manner. They shall treat different people and points of view with respect and tolerance and also be capable of pondering different points of view confidently and critically.

▲ The core content comprises
knowledge of the significance of language and culture as well as cultural interaction.
Students shall know how to work responsibly both alone and in groups. They shall know how to acquire information from different sources, use dictionaries and take notes independently as well as use written material and material stored in information networks to develop their language skills and advance their studies. They shall become capable of critical thinking. They shall be able to use the Finnish/Swedish language to absorb appropriate learning strategies.

▲ The core content comprises absorption of good learning skills and lifelong learning.

**Assessment, satisfactory (S1)**

Students shall
• understand the essential content of oral Finnish/Swedish communication so as to manage in common language use situations in their study and work in the forestry sector;
• understand the essential content of written material related to study, work and occupation as well as to social life;
• know how to use the most important structures of the Finnish/Swedish language and the essential terminology used in forestry so as to be able to express themselves both orally and in writing at work and in issues related to their occupation;
• perform written tasks with guidance;
• know how to ask for advice in problematic situations;
• be able to evaluate the development of their language skills and to set objectives for their development with guidance;
• be familiar with Finnish customs and working culture and understand reasons for cultural differences so as to be able to function in multicultural working groups and communities;
• be able to work independently with guidance and acquire information from different sources in a group;
• be able to function and express themselves as citizens in the Finnish/Swedish language.
3 OBJECTIVES, CORE CONTENTS AND ASSESSMENT OF STUDIES

3.1.2 OTHER NATIONAL LANGUAGE, 1 OR 2 CREDIT(S)

3.1.2.1 OTHER NATIONAL LANGUAGE, SWEDISH, 1 CREDIT

The skills level in the Swedish language in upper secondary vocational education and training is the same as levels 1–3 on the scale of the National Certificates of Language Proficiency. Where a student has completed the test for the National Certificate of Language Proficiency at the required level, he or she is required to provide additional proof of competence in the jargon of his or her own field.

Objectives and core contents, excellent level

Students shall know the significance of the Swedish language and culture in multicultural Finland and know how to function appropriately in Nordic contexts.

Students shall manage routine speech situations related to everyday life, work, their own country and culture, even if they are not capable of maintaining a conversation. They shall be able to function in accordance with the orders, prohibitions and instructions related to work. They shall manage the most common customer service situations both face to face and on the telephone and, where necessary, know how to ask for further specification or clarification. Students shall be able to read brief texts, such as menus, timetables and advertisements as well as work-related user, work and safety instructions. They shall be able to acquire further information necessary in their occupation by using appropriate aids. They shall be able to write brief work-related notes, instructions and lists of orders.

▲ The core content comprises
functioning in work assignments of the forestry sector and in Nordic contexts.

Assessment, satisfactory (S1)

Students shall
• understand simple and familiar spoken and written words and expressions, which are related to their own lives and which concern them and their immediate surroundings;
• understand the essential content of short and simple written and spoken messages related to their own work and occupational safety and be able to function accordingly;
COMPULSORY SUBJECTS

- know how to use a few words to serve customers, at least in key work situations;
- be able to fill in the most common standard forms related to their work.

3.1.2.2 OTHER NATIONAL LANGUAGE, FINNISH, 2 CREDITS

Based on the syllabus started in forms 1–6 of comprehensive school

Objectives and core contents, excellent level

Students shall be able to meet, understand and address Finnish customers, superiors and colleagues with confidence and, based on requests, instructions and conversation, function appropriately in the common work and language use situations in the forestry sector. They shall understand speech and text dealing with occupational matters in particular and be able to communicate orally both face to face and on the telephone and, where necessary, in writing, such as by electronic mail, fax or letter. They shall understand and know how to fill in forms, invoices, order forms and check lists in their field as well as be able to prepare brief descriptions and reports. They shall understand the point or wishes of a customer and be able to present forestry products or services, explain their functions and possible defects or errors. They shall know how to express opinions and courtesies as well as to hold a conversation. They shall also be able to discuss their work assignments and practices in Finnish, as well as to read brochures, regulations, instructions and notices in the forestry sector. They shall also be capable of following events in their field and in society in Finnish-language brochures, information networks, mass media and trade journals.

▲ The core content comprises functioning in work assignments in the forestry sector and acquisition of information.

Assessment, satisfactory (S1)

Students shall
- understand the content of short and simple written and spoken messages related to their own work and occupational safety and be able to function accordingly;
- understand and, at least in central occupational situations, know how to serve customers;
• be able to fill in the most common forms related to their work;
• know how to write a notice or prepare a brief occupational description in Finnish, using appropriate aids.

**Based on the syllabus started in forms 7–9 of comprehensive school**

**Objectives and core contents, excellent level**

Students shall understand the importance of knowledge of the Finnish language in working life and in a bilingual society. They shall react and also be able to function in Finnish at least in routine work assignments, understand the point or wishes of a customer or some other speaker, know how to reply to questions and ask for further information. They shall understand orders, be able to read Finnish-language instructions, advertisements, notices and manuals related to work assignments at least by means of aids, as well as to converse, to some extent, with Finnish-speaking superiors, colleagues and visitors. Students shall also know how to find out the necessary addresses, tools, information and procedures from Finnish-language sources, and they shall be confident enough to ask for help and ask questions in Finnish. They shall be able to tell their superiors, colleagues and visitors a little about themselves, their work and experiences reasonably well. At meetings, they shall also be confident enough to state their opinions in Finnish, and they shall be able to prepare notes, explanations and orders in Finnish using appropriate aids.

▲ The core content comprises

serving customers in Finnish in key situations as well as acquisition of information from Finnish-language sources, at least by means of appropriate aids.

**Assessment, satisfactory (S1)**

Students shall
• be able to meet a customer, superior or colleague and understand and be able to serve them in Finnish in some common situations;
• show that they have understood the main content of an advertisement or an important instruction by functioning accordingly or by explaining the details of it;
• be able to write some messages in Finnish and to fill in a simple form or check list related to work assignments using appropriate aids.
3.1.3 FOREIGN LANGUAGE, 2 CREDITS

In upper secondary vocational education and training, the curricular objectives and assessment of a foreign language have been differentiated according to whether the language chosen by a student is his or her A or B language. The foreign language chosen may also be a completely new language to the student, in which case the objectives and assessment of the B language shall apply. The A and B languages mean:

- **A language** = a foreign language starting in forms 1–6 (formerly lower stage) of comprehensive school;
- **B language** = a foreign language starting in forms 7–9 (formerly upper stage) of comprehensive school.

In upper secondary vocational education and training, the foreign language skills level in the A language is the same as levels 2–4 on the scale of the National Certificates of Language Proficiency, whereas that of the B language corresponds to levels 1–2. Where a student has completed the test for the National Certificate of Language Proficiency at the required level, he or she is required to provide additional proof of competence in the jargon of his or her own field.

### 3.1.3.1 FOREIGN LANGUAGE, A LANGUAGE, 2 CREDITS

#### Objectives and core contents, excellent level

Students shall manage everyday speech situations and be able to describe events, their experiences, wishes and ambitions as well as to speak about their country and culture. They shall understand the main ideas expressed at normal speed in ordinary speech and in personal letters and notes and also be able to ask for further specification, if necessary. They shall be able to get involved in conversations and write personal letters and notes on topics that are familiar and of personal interest and concern everyday life, such as family, hobbies, travel and topical issues.

- ▲ The core content comprises

  functioning as a private individual in an international world.

Students shall know how to communicate appropriately and politely as workers in customer service situations within their field both face to face and on the telephone. They shall be able to present forestry products and services and discuss them with the customer, for example by answering common questions concerning the products and services.
3 OBJECTIVES, CORE CONTENTS AND ASSESSMENT OF STUDIES

Students shall know how to tell a foreign-language colleague or visitor about their workplace, work, assignments, materials and tools in familiar situations. They shall be able to inform people of the norms and conventions related to their own country’s workplace culture, including occupational safety and consideration for the environment, and know the essential corresponding norms and conventions in the target language area. They shall understand written and spoken instructions related to work and products, such as faxes, e-mail messages and advertisements, so as to be able to function appropriately. They shall understand feedback on work and products, apply their skills and knowledge and justify the necessary solutions and corrections.

Students shall be capable of functioning in international working communities, which means that they shall be able to obtain additional instructions related to their work by asking questions, and they shall be able to read literature in the forestry sector. Where necessary, they shall use appropriate aids, including the latest technologies. They shall know how to write simple, coherent texts related to their work, such as orders, instructions and notes.

▲ The core content comprises functioning as a worker in an international working community.

Assessment, satisfactory (S1)

Students shall

• understand relatively easy spoken and written messages related to their own lives and know how to actively acquire information on menus, timetables and brochures, for example;
• understand short and simple written and spoken messages related to work and occupational safety in the forestry sector and be able to function accordingly;
• know how to seek information from foreign-language brochures, instructions and catalogues;
• be able to describe themselves, their living conditions and forestry work assignments;
• be able to write common personal notes and to fill in personal data and other forms related to forestry work.
3.1.3.2 FOREIGN LANGUAGE, B LANGUAGE, 2 CREDITS

Objectives and core contents, excellent level

Students shall be able to pose simple questions and respond when dealing with the immediate, concrete environment and themselves where the person speaking is doing so slowly and clearly. Where necessary, they shall know how to ask for clarification. They shall be able to communicate verbally and non-verbally when introducing themselves, making purchases, purchasing tickets and finding accommodation, for example. They shall understand instructions, advertisements, catalogues, etc. containing simple phrases and sentences, which are related to very familiar topics in both their private and working lives. They shall be able to write short and simple personal messages, such as cards, and to fill in simple, standard work-related and personal data forms. They shall be able to receive work-related spoken and written messages and to function according to the requirements of the situation either independently or with assistance from other people.

▲ The core content comprises functioning in interactive situations in private and working life.

Assessment, satisfactory (S1)

Students shall
• understand familiar words and phrases concerning themselves and their immediate working environment;
• understand words and phrases as well as simple sentences in familiar advertisements, catalogues and work instructions, for example;
• be capable of describing themselves and their work in a few words;
• be capable of writing a brief, simple note related to common work assignments in the forestry sector, as well as of filling in personal data forms.
3 OBJECTIVES, CORE CONTENTS AND ASSESSMENT OF STUDIES

STUDIES IN MATHEMATICS AND NATURAL SCIENCES

3.1.4 MATHEMATICS, 3 CREDITS

Objectives and core contents, excellent level

Students shall be able to apply mathematics diversely in their future occupation and to use it for solving problems. Students shall be fluent in the basic calculations, such as percentage calculation and conversion of units, in assignments related to their occupation. They shall be able to express relationships between quantities by means of algebraic expressions and formulate phenomena of working and everyday life into mathematical models, such as equations, expressions, tables and diagrams. Students shall be able to solve mathematical problems with equations, deduction and graphs. Students shall know how to apply geometry as required by the forestry sector, such as calculating surface areas and volumes and using scale.

▲ The core content comprises
solving mathematical problems occurring in the occupation, exploiting basic calculations, modelling and geometry.

Students shall know how to use calculators and computers to solve problems. They shall be able to assess the reliability, accuracy and plausibility of the results obtained. They shall be able to collect information independently and to compile it into statistics, tables and graphs concerning their field. They shall know how to read and interpret statistics. Students shall be able to apply economic mathematics, such as cost estimates and tax and loan calculations.

▲ The core content comprises
assessment of the validity of results and drawing and interpreting statistics and tables, as well as economic mathematics.

Assessment, satisfactory (S1)

Students shall know how to
• correctly calculate additions, subtractions, multiplications and divisions required in their occupation;
• calculate percentages and use units correctly;
• solve the most common mathematical problems occurring in the forestry sector either through deduction or by describing the problems with the aid of equations;
• use calculators and computers to solve the key mathematical problems in forestry;
• read statistics, tables and graphic representations concerning forestry;
• calculate the surface areas and volumes of the most common solids they use;
• calculate material and manufacturing costs for their work.

3.1.5 PHYSICS AND CHEMISTRY, 2 CREDITS

Objectives and core contents, excellent level

Students shall master the physical laws that are most important to their occupation, such as thermal transfer, air humidity and thermal expansion. They shall know how to use the electrical appliances they need in a safe and economical manner. They shall be able to work ergonomically, which requires them to be conversant with physics related to ergonomics.

▲ The core content comprises
mastering physics required to achieve vocational skills and to maintain working ability.

Students shall know how to take account of the chemical phenomena in their work, which are central to the environment and their occupation. For this purpose, they shall know the chemical properties of the most common elements and compounds (such as oxygen, nitrogen, hydrogen, carbon and its oxides, the most important acids, bases, salts, carbohydrates, fats and proteins). They shall know how to properly store and use substances needed in forestry as well as how to dispose of them appropriately. They shall be able to take account of the special properties of substances in their work, so as not to jeopardise their own safety, that of other people or the environment. Students shall be able to recognise and interpret the specifications of the substances and materials used in forestry as well as those of forestry products to determine the factors related to health and safety and know how to act according to the requirements of the situation.

▲ The core content comprises
knowledge of the chemical phenomena central to the forestry sector and how to take account of them in one's own work, as well as appropriate use, storage and disposal of the substances used in the sector.
Students shall be able to take account of the laws of nature at work and in their private lives and to function accordingly, conserving energy and the environment. Students shall be able to describe the life cycle of a product used/manufactured in the forestry sector and the related energy transformations.

▲ **The core content comprises**

- life-cycle thinking and the related energy economy.

Students shall be able to make observations and take measurements of the key physical and chemical phenomena related to forestry. They shall know how to interpret results of physical and chemical measurements and to make conclusions based on these. They shall know how to assess the reliability, accuracy and plausibility of the results obtained from measurements. They shall be able to document the results in accordance with the quality requirements applied in the forestry sector and to present them in the form of tables or graphs, for example. They shall be able to acquire information necessary for their work independently, adopt a critical approach towards the information and to modify it into a practical form. They shall know how to apply their knowledge of physics and chemistry by using economical and environmentally friendly working methods and techniques.

▲ **The core content comprises**

- experimental work and assessment of the validity of results, as well as documentation of results.

**Assessment, satisfactory (S1)**

Students shall know how to:

- recognise the key phenomena and laws of physics and chemistry related to the most common work assignments in their occupation;
- work without endangering themselves, other people or the environment and use different equipment, such as electrical appliances, safely and economically;
- store and use the chemicals needed in their work properly and to dispose of waste appropriately;
- recognise and interpret the specifications of the substances used/manufactured in the forestry sector to determine factors related to health and safety and to act according to the specifications;
- describe the life cycle of a product;
- take measurements they have practised according to instructions, record their results and draw up a legible report of the results.
HUMANITIES AND SOCIAL STUDIES

3.1.6 SOCIAL, BUSINESS AND LABOUR-MARKET SUBJECTS, 1 CREDIT

Objectives and core contents, excellent level

Students shall know how to function actively in their educational institutions and in other operating environments related to their study, such as other educational institutions, working communities and international student exchanges. They shall be conversant with the rights and responsibilities related to their study and to their own age as well as the fundamental rights and responsibilities of citizens. They shall understand their social responsibilities and act accordingly. In addition, they shall be aware of the main aspects of the operations of the European Union and their effects on the activities of citizens.

▲ The core content comprises
functioning as a member of a community and of society and as a citizen of the EU.

Students shall be able to manage their own finances and financial obligations, such as taxes. They shall understand the significance of taxes as a source of funding welfare services and shall be conversant with the Finnish social security system, so as to be able to apply for assistance, if necessary. They shall understand the effects of households and business activities on employment and the national economy, so as to promote them as consumers and in customer service situations. They shall understand the position of Finland in relation to other countries and take account of the principles of sustainable development in their actions.

▲ The core content comprises
the central effects of households and businesses on the national economy of Finland.

Students shall know how to become actively involved in the labour market or in some form of civic activity. In order to find employment, they shall know how to present their abilities to employers or, when becoming self-employed, to interest groups, which requires them to be able to appreciate their occupation and vocational skills. In their actions, they shall take account of the fact that all people have the same civic rights and duties. They shall be familiar with the operating principles, methods and essential contractual procedures of the labour market so as to be capable of entering into a contract of employment in their field and to
look after their rights and responsibilities as members of a working community. They shall be aware of their rights on the international labour market and know how to apply for work in other EU countries in particular.

▲ The core content comprises
functioning as a member of a working community and according to the procedures of the labour market.

Assessment, satisfactory (S1)

Students shall
• know how to function in their educational institution and in on-the-job learning places in accordance with their rules;
• be able to act in accordance with the rights and responsibilities related to their study and age;
• be able to function as members of society in accordance with fundamental civic rights and duties;
• know how to plan their own finances and attend to the related obligations with guidance;
• know their rights and responsibilities as employees and know how to apply for work, enter into a contract of employment and observe the terms of the contract;
• be able to consider their own consumer behaviour and its effects on employment and the national economy;
• be able, with guidance, to seek information on decision-making and the labour market within the EU.

HEALTH EDUCATION

3.1.7a HEALTH EDUCATION, 1 CREDIT

Objectives and core contents, excellent level

Students shall, through their actions and knowledge, show ability and motivation to maintain and promote health. They shall understand the significance of mental health, human relations and sexuality to an individual’s well-being. They shall be aware of the adverse effects of smoking and intoxicants and know how to prevent factors detrimental to health. They shall be able to show that they are aware of health-promoting lifestyles and habits, such as the interconnections between physical exercise, nutrition, rest, recreation and health.
Students shall be able to recognise the key health stress factors in their occupational field and know how to develop their working methods and environment in co-operation with others, in order to make them safe and healthy.

Students shall master the ergonomic requirements of their work, prevention of accidents and the most common situations requiring first aid in their work. They shall be able to recognise factors influencing mental and physical resources at work, be conscious of their own resources and act so as to promote ways of coping at work. Where necessary, they shall know how to use occupational health and other health care services and the physical exercise opportunities provided by the workplace to maintain their functional and working ability.

▲ The core contents comprise activities maintaining health and mental and physical resources at work and in leisure time as well as prevention of work-related risk factors.

**Assessment, satisfactory (S1)**

Students shall
- show that they are aware of health-promoting lifestyles and habits and of health hazards related to smoking and the use of intoxicants;
- be able to recognise the stress factors central to their occupational field and know how to develop safe and healthy working methods and a safe and healthy working environment in co-operation with other people, with guidance;
- know how to seek help and guidance to maintain their health as well as their working and functional ability.

**ART AND PRACTICAL SUBJECTS**

**3.1.7b PHYSICAL EDUCATION, 1 CREDIT**

**Objectives and core contents, excellent level**

Students shall show ability and motivation to promote a healthy and physically active lifestyle. They shall know how to exploit physical exercise to maintain and promote their own health and well-being as well as their functional and working ability. They shall be able to prepare a personal exercise programme, follow it and evaluate its effects on their own mental and physical resources. They shall show that they understand the effects of physical exercise and relaxation on health and functional and working ability.
Students shall know how to acquire experiences promoting physical condition and producing enjoyment through diverse physical exercise in different environments in all seasons. They shall take responsibility for their own physical exercise activities and observe agreements and agreed schedules. They shall act ‘in the spirit of fair play’, take other people into account and help them in physical exercise and other interactive situations.

▲ The core content comprises
preparing and following a personal exercise programme and pursuing different forms of physical exercise in different environments and in different seasons.

Assessment, satisfactory (S1)

Students shall
• be able to prepare a personal exercise programme for themselves with guidance and know how to follow and monitor it;
• know how to gain experiences promoting their physical condition and providing enjoyment in all seasons with guidance;
• observe agreements and schedules or agree on changes in their physical exercise activities and also actively participate in the agreed physical exercise.

3.1.8 ARTS AND CULTURE, 1 CREDIT

Objectives and core contents, excellent level

Students shall participate actively in artistic and cultural interests and renew the culture of their own school community by means such as taking part in the development and maintenance of the community’s aesthetic, visual and auditory appearance. They shall appreciate the significance of art in their own lives and know its manifestations in a multicultural society. They shall also know how to acquire and process information conveyed by the media.

▲ The core content comprises
participation in the artistic life and cultural events of the neighbourhood or school community.

Students shall be able to exploit and appreciate the traditions of forestry in the assignments of their occupational field. They shall know how to
take account of the values related to their customers’ cultures in their own actions, which requires them to be aware of the fact that art takes on different forms in different cultures.

▲ The core content comprises
familiarising oneself with the traditions of forestry and exploiting them.

Students shall be able to create a product of one or more art forms using their own ideas and visions, which requires them to be able to proceed from the acquisition of information and the generation of ideas to a completed product. They shall be able to take account of the requirements of ecological sustainability in their choice of materials and in their work. They shall know how to evaluate their own and other people’s work and products and to use the feedback they have received to improve their work. Students shall be able to recognise the aesthetic qualities of their working and living environments and to evaluate their effects on the quality of life.

▲ The core content comprises
the creation of one’s own product and environmental awareness.

**Assessment, satisfactory (S1)**

Students shall know how to
• participate in artistic and cultural events in their neighbourhood;
• participate in the development of a comfortable and effective school community and working environment with guidance;
• acquire information conveyed by the media for their products and assess it with guidance;
• take account of the values related to their customers’ cultures, which are central to their work or the service situation, in their own actions;
• take account of conserving energy and natural resources when working in terms of material choices, for example;
• create a product, with guidance, that expresses their own ideas, feelings and visions by hand or by a different means, in a way best suited to themselves and their occupational field.
3.1.10 ENVIRONMENTAL STUDIES, 4 CREDITS

Objectives and core contents, excellent level

Students shall know how to act in support of sustainable development and biodiversity, and they shall be able to make ethically and economically sustainable choices both as citizens and in their occupation, which requires them to be conscious of the necessity for sustainable development and to understand the connections of human activities to the environment and the balance of nature both locally and globally. They shall understand the interconnections between the use and processing of natural resources, consumption of goods as well as waste and emissions and be able to evaluate them in terms of nature conservation and environmental protection.

Students shall value their environment and take into account the fact that people have the right to a healthy environment, so as to be able to assess the effects of their own actions and consumer habits on the state of the environment and to endeavour to change consumption and production methods, as well as to actively contribute as consumers to promoting product development that reduces environmental burdens. They shall be conversant with the environmental risks of their field and know how to use means of environmental protection to minimise these.

Students shall be aware of the complexity and contradictions of environmental issues in everyday life and when functioning in their occupation and be able to take account of different points of view when making decisions. Students shall know how to obtain information concerning the environment and to assess the direct and indirect environmental effects of their own consumer choices.

Students shall value their living environment and cultural heritage. They shall know how to take care of the functionality, aesthetic qualities, attraction and healthiness of their living and working environments. They shall adopt a responsible attitude towards the visual and auditory cultural environment and national cultural heritage. They shall act in their
educational institution so as to promote sustainable development. They shall know how to influence the development of their immediate surroundings.

▲ The core content comprises preservation of biodiversity, ecological consumption and functioning so as to promote sustainable development.

Assessment, satisfactory (S1)

Students shall know how to
• use the nature of Finland for recreational purposes and utilise its gifts with respect for nature;
• make sustainable choices as consumers and in their occupation with guidance;
• take account of the environmental risks related to their work;
• function in a responsible manner in individual situations and, where necessary, be able to ask for advice;
• observe the environmental regulations of their workplace in terms of their own work;
• keep their school, working and living environments tidy and clean;
• consider the effects of marketing on their own consumer behaviour and assess their own consumption from the point of view of sustainable development;
• seek environmental information related to their occupation from different sources and apply it in their own work, with guidance.

3.1.11 INFORMATION AND COMMUNICATIONS TECHNOLOGY, 4 CREDITS

Objectives and core contents, excellent level

Students shall know how to use information and communications technology in an active and responsible manner as a means of communication and to acquire, process and produce information in the assignments of their own field and as active members of society. They shall know how to handle files, i.e. retrieve, store and copy them and send them via electronic mail. They shall be able to use word processing, spreadsheet, graphics and database software and to attach tables and images to text. They shall know how to use information technology equipment and the resulting opportunities in a diverse manner, also for independent study. They shall be able to exploit the opportunities provided by information technology for lifelong learning and co-operation through
networks. Students shall be able to use different search services, have a critical attitude towards the information they have found and modify it into a functional form. They shall know how to use various telecommunications services to transmit information.

▲ The core content comprises
   the use of information technology, various sources of information and telecommunications equipment in one’s own occupational field and in private life.

Assessment, satisfactory (S1)

Students shall know how to
• use one word processing program;
• retrieve, store and copy files;
• seek the information they need from the Internet, for example;
• use electronic mail;
• use telecommunications services with guidance.

3.1.12 ETHICS, 4 CREDITS

Objectives and core contents, excellent level

Students shall be able to acquire information about the ethical issues of their own field as well as to evaluate the values and ethical problems related to their own lives, human relations, society, the environment, working life, business activities and occupations. They shall know how to evaluate the significance of values, norms, virtues and opinions in their own lives and in relationships between people. They shall be able to discuss issues of ethics and philosophy, treat them and present justifiable views on them. They shall be able to discuss ethically problematic situations related to working life and the forestry sector.

▲ The core content comprises
   reflecting on issues related to ethics, life skills and occupational and social ethics from the point of view of each student’s own life.

Students shall be able to make ethically justified value choices and assess their effects in terms of human dignity, justice and sustainable development. They shall know how to solve value and norm conflicts in an ethically acceptable manner both independently and in groups, in particular in working life issues in the forestry sector. They shall be able
to act in a responsible and ethically sustainable manner in situations of
conflict and be willing to take part in the development of the basic values
and ethical principles in their own field.

▲ The core content comprises
solving conflicts of values and norms in the forestry sector as well as
responsible and ethical behaviour in conflict situations.

Assessment, satisfactory (S1)

Students shall
• be able to reflect on the values related to their own lives and human
relations as well as issues of ethics and philosophy with guidance;
• know how to justify their own value choices;
• know how to solve value and norm conflicts related to the forestry
sector in an ethically sustainable manner together with members of
their working community;
• be able to function in a responsible and ethically sustainable manner,
with guidance, even in situations of conflict related to their occupation;
• know how to seek information on the ethical issues of their field with
guidance.

3.1.13 OTHER CULTURES, 4 CREDITS

Objectives and core contents, excellent level

Students shall be able to interact with people from different cultures.
This includes making acquaintance, greeting, receiving visitors, physical
territory, bounds of propriety in conversation, as well as different male
and female roles, dress codes and rules of behaviour, including unwritten
rules and procedures.

▲ The core content comprises
acting and dressing in different situations as well as meeting
colleagues, customers and visitors.

Students shall recognise intercultural differences prevailing in the forestry
sector in workplace behaviour and hierarchy and in work-related public
relations and be able to behave properly in common situations occurring
in the workplace, in particular in customer service situations.
3 OBJECTIVES, CORE CONTENTS AND ASSESSMENT OF STUDIES

▲ The core content comprises
flexible behaviour adjusted to the organisational environment and assignments.

Students shall be able to present the general cultural characteristics of their country to representatives of other cultures, such as its main history, sights, arts, sporting achievements and entertainment, as well as more specific information on skills, working methods and innovations in their own field.

▲ The core content comprises
recognition, knowledge and presentation of the most common cultural characteristics.

Students shall be able to compare significant events and eras of their home district and country with the history of neighbouring countries and the world. They shall be able to reflect on the interpretations attached to historical events in different countries. They shall be able to compare the major cultural tendencies and trendsetters in their own country with those of other European countries.

▲ The core content comprises
knowledge of and comparison between the cultural history and present situation of Finland and neighbouring countries.

Students shall be familiar with the special characteristics of the forestry sector in other countries.

▲ The core content comprises
knowledge of the special characteristics of the forestry sector.

Assessment, satisfactory (S1)

Students shall know how to
• seek information on differences between people's everyday activities in Finland and in some other countries with guidance;
• also meet foreign colleagues, customers and visitors without major cultural conflicts;
• explain central matters about Finland and their work to visitors from foreign countries;
• seek information about and describe the forestry sector in some other country or recognise characteristics of forestry services and products in different countries;
• seek information on foreign countries and their cultures with guidance.
3.1.14  PSYCHOLOGY, 4 CREDITS

Objectives and core contents, excellent level

Students shall be conscious of their own learning styles and be able to develop their own learning after acquainting themselves with the basic mechanisms of learning. They shall be able to explain and understand both their own actions and those of other people in common working life situations by applying the basic psychological knowledge of human thinking, perception, personality traits, emotions and other mechanisms regulating behaviour. They shall be able to use knowledge of psychology to become conscious of their own and other people’s emotions and attitudes and also know how to control their emotions and attitudes in working life according to the requirements of the situation. They shall be able to use knowledge of psychology to develop their self-knowledge and self-concept.

▲ The core content comprises
- explanation and understanding of human actions with the aid of cognitive and personality psychology as well as development of learning and self-knowledge.

Students shall manage in different customer service and group work situations by acquainting themselves with the psychological factors at work in group and team activities. They shall familiarise themselves with the dynamics of human relations in the workplace, and they shall know how to act in different roles in the workplace in a co-operative manner. They shall be capable of operating with different people in their working community. They shall be able to recognise different leadership styles and working cultures and also know how to function accordingly.

▲ The core content comprises
- functioning in a workplace’s interpersonal and interactive situations as well as explanation and understanding of action with the aid of social and organisational psychology.

Students shall acquaint themselves with the effects of motivation on goal-oriented human action at work and in leisure time, so as to be able to explain and evaluate their own performance with the aid of this information and to improve their own performance. They shall understand the effects of commitment to work and identification with a group on performance and satisfaction at work as well as endeavour to take these into account in their own activities.
3 OBJECTIVES, CORE CONTENTS AND ASSESSMENT OF STUDIES

The core content comprises motivation, identification and commitment as well as their effects on one’s own work performance and that of others.

Students shall know how to be active in influencing the well-being of the working community after acquainting themselves with the most significant psychological factors influencing mental working and functional ability and the mechanisms regulating action. They shall be conscious of the psychological factors influencing their own resources and stress management, and they shall know how to influence these so as to promote the sufficiency of their resources. They shall acquaint themselves with people’s psychological problems, crises and mental disturbances so as to be able to seek help for them where necessary.

The core content comprises maintenance of mental working and functional ability and seeking help for psychological problems.

Assessment, satisfactory (S1)

Students shall
• know the key factors influencing the act of learning and know how to assess their own learning with guidance;
• be able to explain human actions in common working life situations as well as their own actions in everyday and working life situations with the aid of psychology;
• know how to apply the essential knowledge of psychology when functioning in the workplace’s common customer service and interactive situations;
• be able to take account of the significance of motivation, identification and commitment to their own performance;
• be able to reflect on their own opportunities to promote their mental working and functional ability.

3.1.15 ENTREPRENEURSHIP, 4 CREDITS

Objectives and core contents, excellent level

Students shall know how to develop and evaluate different business ideas and choose one that is related to their study as well as develop and protect it. They shall be able to express their business idea in visual and written forms as well as to create ideas and, based on that, produce products and
services. They shall take account of the requirement of sustainable development in product development. Students shall be capable of setting financial objectives for their business idea.

▲ The core content comprises
development of a business idea and a product.

Students shall be able to weigh up the alternative ways of setting up their own business enterprise as well as the effects of self-employment on their careers and personal lives. They shall master the basic properties of the most common forms of enterprise and their differences as well as related responsibilities and taxation, so as to command the procedure related to the establishment of an enterprise and the special characteristics of entrepreneurship in the field. They shall know how to draw up the documents related to the establishment of an enterprise and to change the form of enterprise at different stages of the business.

▲ The core content comprises
setting up a business enterprise.

Students shall know how to serve both the external and internal customers of the enterprise in a customer-focused manner. They shall be able to apply a needs-based approach in their customer contacts in order to generate sales. They shall be able to act so as to ensure customer satisfaction, which enables the prosperity and continuity of business activities. They shall be familiar with product liability and consumer rights in customer relations.

▲ The core content comprises
customer service and sales.

Students shall be able to perceive the whole of marketing at different stages of the life cycle of a product or service. They shall know how to identify the internal and external factors that influence marketing. They shall be able to determine correct target groups for products or services and focus their marketing plans on these. They shall know how to use different channels to acquire information and to exploit statistics and files. Based on these, students shall know how to plan their virtual enterprise’s marketing and to decide on prices, products, availability and marketing communications. When making decisions, they shall be able to act in a customer-focused manner and pursue long-term customer relations.
3 Objectives, Core Contents and Assessment of Studies

▲ The core content comprises
marketing the enterprise and product.

Students shall be able to act according to ethical values in their business activities. They shall know how to plan the scope of activity of their virtual enterprise as well as the necessary resources and funding. They shall know how to budget their activities and monitor the success of their enterprise. Students shall know how to calculate the costs and revenues of their virtual enterprise and to determine the price of the product or service of the enterprise, as well as to take account of the effects of discounts on profitability. Based on these, they shall know how to prepare a profit and loss account and a balance sheet and to analyse the change needs of their activities. Students shall be able to calculate the other most important indicators in the forestry sector. They shall know where to obtain reference data and be able to use it in planning their activities. They shall be capable of taking and managing risks in their virtual enterprise. Students shall command the principles and cost effects of calculating wages and salaries in the field of their business idea. They shall know how to prepare the declarations related to payment of wages and salaries for the tax authorities and the insurance company.

▲ The core content comprises
monitoring the finances of the enterprise.

Assessment, satisfactory (S1)

Students shall
• take initiative and know how to evaluate their chances of self-employment;
• know how to seek information on SMEs operating in their field in a familiar group and to develop small-scale business ideas on the basis of the products or services they have produced during their education and training;
• be able to set financial objectives for their enterprise;
• know how to market their product or service in the immediate environment and to serve customers;
• know how to determine a profitable price for a product or service and to calculate the costs and revenues of their activities;
• know how to seek information on the ethical issues related to business activities in their field and reflect on their own activities with guidance.
3.2 OBJECTIVES, CORE CONTENTS AND ASSESSMENT OF VOCATIONAL STUDIES AND ON-THE-JOB LEARNING

3.2.A Common Vocational Studies of the Qualification, 25 Credits

3.2.1 BASIC FORESTRY SKILLS, 8 CREDITS

Objectives and core contents, excellent level

Students shall be able to identify different types of habitat, forest types and indicator species found in their own operating area as well as the most important domestic tree species. They shall command selection of tree species and densities of tree species relating to their work, taking the ecological and economic foundations of forestry into account.

▲ The core content comprises
selection of tree species.

Students shall be able to detail the most important principles of forest regeneration and silviculture. They shall be able to explain the premises of forest legislation and certification of forests and the qualitative and economic objectives of silviculture. They shall be able to take recommendations for ecosystem management of commercial forests into account in their work.

▲ The core content comprises
forest management.

Students shall command the measuring and assessment methods of the growing stock related to their work assignments.

▲ The core content comprises
measurement and assessment of the growing stock.

Students shall know how to carry out natural regeneration work, cultivate forests taking account of the foundations and methods of seed and nursery stock production, tend seedling stands and tend to and improve young forests. They shall know how to use, repair and service tools and equipment used in wood production in a safe and ergonomically correct manner.

▲ The core content comprises
forestry work.
Students shall be able to provide information on employers, operators and functions in wood production in their own region and the job opportunities provided by these.

▲ The core content comprises employers and functions in wood production.

Assessment, satisfactory (S1)

Students shall know how to
- identify different types of habitat, forest types in their own operating area and the most important domestic tree species;
- select the correct tree species and density for each site in accordance with instructions;
- assess and measure the growing stock on the basis of instructions provided;
- carry out forestry work with guidance;
- use and service wood production tools and equipment;
- list employers and functions in wood production in their own region.

3.2.2 BASIC TIMBER HARVESTING SKILLS, 10 CREDITS

Objectives and core contents, excellent level

Students shall be able to explain the silvicultural and economic starting points for planning marked stands and timber harvesting. They shall know how to carry out field work related to planning a marked stand and timber harvesting and take the significance of valuable natural sites into account in timber harvesting. They shall be able to make use of a forest plan. Students shall also be able to take account of the effects of the timber trade on planning a marked stand.

▲ The core content comprises planning a marked stand and timber harvesting.

Students shall know how to produce timber manually in young or middle-aged stands in accordance with dimensional and quality requirements provided. They shall master safe and ergonomic working methods. They shall know how to use, service and repair the tools and equipment that they need in their work. Students shall know how to take the requirements of good forestry into account in felling operations. They shall know how
to measure timber stacks and logs. They shall know how to administer first aid and to report on any accidents as required.

▲ The core content comprises
  manual production and measurement of timber.

Students shall be able to perceive the significance of forest haulage as being a key part of the complete timber harvesting chain. Students shall command the basics of operating a forestry tractor, so as to know how to drive and load it with guidance in normal forest terrain conditions and to carry out daily servicing tasks. In addition, students shall be capable of explaining the potential uses of other machinery, such as agricultural tractors, snowmobiles and utility all-terrain vehicles (ATVs), in forest haulage of timber.

▲ The core content comprises
  forest haulage of timber.

Students shall be able to detail the structures and most important properties of the main domestic tree species and to explain their effects on the processing and utilisation of wood raw material as well as the various uses and potential applications of wood. They shall be able to provide information on employers and functions in timber harvesting and wood processing in their region and the job opportunities provided by these.

▲ The core content comprises
  utilisation of wood and timber.

Assessment, satisfactory (S1)

Students shall know how to
  • carry out field work related to planning a marked stand and timber harvesting;
  • produce timber manually in young and middle-aged stands in accordance with instructions provided;
  • use and service the tools and equipment that they need in their work;
  • function as members of a timber measuring crew;
  • function as members of a first aid team;
  • detail various uses and potential applications of wood;
  • list employers and functions in timber harvesting and wood processing in their own region.
3.2.3 BASIC SKILLS IN THE MULTIPLE USE OF FORESTS AND IN ENVIRONMENTAL PROTECTION, 7 CREDITS

Objectives and core contents, excellent level

Students shall be able to describe the effects of the multiple use of forests, environmental protection and landscape management on forestry. They shall be capable of detailing public rights of access and the key forms of and opportunities for recreational use of forests. They shall know how to construct simple structures for outdoor exercise and recreation areas, such as lean-tos and campfire sites.

▲ The core content comprises public rights of access and work related to recreational use of forests.

Students shall be able to identify the most common forest berries and the most important edible mushrooms found in their own region. They shall know how to pick these for household consumption.

▲ The core content comprises picking forest berries and mushrooms.

Students shall be able to identify the most common game animals and fish species found in their own region, know how to carry out game management tasks and be able to describe various forms of hunting and fishing.

▲ The core content comprises the most common game animals and fish species and game management tasks.

Students shall be able to detail the significance of environmental protection and preservation of valuable forest habitats and biodiversity of woodlands, as well as the environmental effects of commercial forests. They shall know how to carry out environmental maintenance work relating to the management of parks, urban and scenic woods, such as planting and removal of trees and site maintenance and repair tasks.

▲ The core content comprises valuable habitats in forest ecosystems and environmental maintenance work.
Assessment, satisfactory (S1)

Students shall know how to
• identify the most common forest berries found in their own region and some important edible mushrooms and pick these for household consumption;
• identify some of the most common game animals and fish species found in their own region, participate in fishing and hunting trips and carry out game management tasks with guidance;
• detail public rights of access and carry out work relating to recreational use of forests with guidance;
• describe the significance of valuable forest habitats;
• carry out environmental maintenance work with guidance.

3.2.B Vocational Studies of the Study Programmes

STUDY PROGRAMME IN FORESTRY

3.2.4 FORESTRY, 25 CREDITS

Objectives and core contents, excellent level

Students shall be able to provide details of different methods of forest land management and their effects on the soil and growing stock and, in particular, on initial development of seedling stands. Students shall be able to determine the maturity of a forest stand for regeneration, the improvement and maintenance needs of forest soil and the methods to use, considering the needs of the stand to be established and the individual tree species. Students shall be able to identify the most common types and agents of forest and timber damage and methods of preventing these. Students shall be capable of independently carrying out forest regeneration work, such as clearing, seeding, planting and early management of a regeneration area, so as to avoid any environmental risks.

▲ The core content comprises forest regeneration.

Students shall be capable of specifying the thinning needs of seedling, young and middle-aged stands with the aid of a forest plan. They shall know how to select trees for removal. They shall be able to justify the significance of thinning operations to wood production, forest health
and the environment. They shall be capable of planning and performing their work on their own initiative. They shall be able to carry out forestry work safely and ergonomically. They shall be capable of using and servicing wood production tools and equipment independently. Students shall be capable of explaining the significance of and opportunities for forest improvement. They shall be able to describe the objectives of different groups of forest owners in forest cultivation.

▲ The core content comprises forest cultivation.

Students shall know how to take the opportunities for and significance of cultivating special tree species into account in forestry, including economic and environmental considerations.

▲ The core content comprises cultivation of special tree species.

Students shall know how to independently measure the amounts of work required for wood production. They shall be able to assess the quality of their work and to price the work in accordance with current practices. They shall know how to use data collection equipment and information technology related to their work. They shall command the principles and basic methods of inventory. Students shall be able to assess and report on the results of their work. They shall be able to take the requirements of the environment, landscape management and multiple use into account in their work.

▲ The core content comprises quality and pricing of work.

Assessment, satisfactory (S1)

Students shall know how to
• explain forest regeneration methods;
• identify the most common types of forest and timber damage;
• carry out forest regeneration work in accordance with instructions;
• determine the thinning needs of seedling, young and middle-aged stands with guidance;
• explain the significance of thinning to trees being cultivated;
• safely use and service the tools and equipment used in wood production work;
• measure the amounts of work required for wood production with guidance.
3.2.5 TIMBER HARVESTING, 20 CREDITS

Objectives and core contents, excellent level

Students shall be able to take silvicultural, economic and environmental maintenance considerations into account in planning marked stands. They shall command planning and field work involved in stand marking and timber harvesting. They shall know how to interpret and use a forest plan and various maps of marked stands. Students shall be able to detail different methods of forest cultivation and regeneration. They shall be able to take account of the effects of the timber trade on planning marked stands.

▲ The core content comprises planning a marked stand and timber harvesting.

Students shall know how to produce timber according to dimensional and quality requirements. They shall be able to take safety considerations and related measures into account in their work. They shall be able to work safely, economically and ergonomically.

Students shall master measuring techniques related to their work. They shall know how to use, service and repair the tools and equipment that they need in their work. Students shall be able to detail the most important properties and potential uses of machinery and equipment used in forests as well as the factors influencing their economic efficiency. In addition, they shall know how to use the forest haulage equipment that they need, such as forestry tractors, agricultural tractors, snowmobiles, utility ATVs, horse-drawn vehicles, etc. They shall be capable of cooperating with mechanised timber harvesting chains, supplementing their operations. Students shall know how to use global positioning and communications systems relating to their work.

▲ The core content comprises timber production.

In their work, students shall be able to take into account safety hazards caused by electric power lines, wind, storm damage, crown snow load and the terrain, etc., as well as the requirements of the environment, landscape management and multiple use.

▲ The core content comprises special timber harvesting sites.
Students shall be able to detail the different uses and procurement sites of fuel wood and they shall command the most common methods of harvesting fuel wood. They shall be capable of describing factors influencing the quality and calorific value of fuel wood.

▲ The core content comprises harvesting of fuel wood.

Students shall be able to explain the key legal provisions governing employment relationships and social security in the forestry sector, as well as the most essential details of the collective agreement in forestry and the special features and opportunities of forestry entrepreneurship. They shall be able to assess the quality of their work and to price the work in accordance with current practices. Students shall be able to assess and report on the results of their work. They shall be able to take customer needs and wishes into account in their work.

▲ The core content comprises quality and pricing of work.

Students shall be capable of administering first aid to themselves and to their co-workers.

▲ The core content comprises forest workers’ first aid skills.

Assessment, satisfactory (S1)

Students shall know how to
• carry out field work involved in planning stand marking and timber harvesting in accordance with instructions;
• produce and measure timber that conforms to instructions provided;
• use, service and repair the tools and equipment that they need in their work;
• use the forest haulage equipment that they need;
• explain the requirements of timber harvesting at special sites;
• harvest fuel wood in accordance with instructions;
• detail the most essential contents of the collective agreement in forestry and the general employment relationship and social security practices in the field;
• administer first aid to themselves and their co-workers.
3.2.6 ENVIRONMENTAL PROTECTION, 10 CREDITS

Objectives and core contents, excellent level

Students shall be able to explain the most essential contents of statutes governing forests and nature conservation and to take these into account in forest management. In addition, they shall be able to detail the effects of environmental legislation and nature conservation programmes on forest management and the effects of the town and country planning system at municipal level.

▲ The core content comprises legislation and regulation systems.

Students shall be able to identify valuable forest habitats and to provide details of recommendations for ecosystem management of commercial forests and they shall know how to take these into account in forest management. They shall be able to explain the forest certification system and take the requirements of certification into account in forest management.

▲ The core content comprises valuable habitats in forest ecosystems and forest certification.

Students shall know how to manage urban and scenic woods, timberline forests and other environmental forests, taking customer needs and environmental characteristics into account. They shall also be able to take safety considerations and related measures into account in their work and know how to use the machinery, equipment and tools required at work in a safe and ergonomic manner. They shall be capable of taking the requirements set for a site into account, even when these are disparate. Students shall be able to assess and improve the quality and content of their work.

▲ The core content comprises management of environmental forests.

Students shall be able to take customer needs and wishes into account in their work. They shall be able to detail and justify the working methods that they have used and to provide advice and guidance for their customers. Students shall be able to deal with public information situations relating to their work.
The core content comprises customer service.

Assessment, satisfactory (S1)

Students shall know how to

• detail the content of forest legislation, regulation systems of environmental maintenance and the significance of forest certification;
• describe the effects of work carried out in forests on the forest environment;
• identify valuable forest habitats;
• manage environmental forests in accordance with instructions;
• detail and justify their own work;
• deal with customer situations relating to their work.

STUDY PROGRAMME IN FOREST MACHINERY

COMMON STUDIES

3.2.7 ENTREPRENEURSHIP AND COMMUNICATION, 4 CREDITS

Objectives and core contents, excellent level

Students shall master the basics of business economics and administration, so as to be able to consider the possibility of setting up their own machinery and transport enterprise and to develop and assess various business ideas. They shall be capable of expressing the key aspects involved in business operations and in the machine operators’ occupation in verbal, visual and written form even in front of an audience. Students shall know how to use information and communications technologies as a means to acquire, process, produce and communicate information. Students shall command the key terminology of entrepreneurship in the fields of forestry, forest machinery and vehicles and transportation in at least one international language. Students shall be able to act, behave and dress appropriately.

The core content comprises

business operations and communication in a forest machinery enterprise and business information and communications technologies.
Assessment, satisfactory (S1)

Students shall know how to
- detail different forms of enterprise;
- take the effects of their own actions on the success of the enterprise into account;
- communicate clearly and in a customer-focused manner between their workplace and relevant interest groups.

3.2.8 MACHINERY STRUCTURES AND MAINTENANCE, 10 CREDITS

Objectives and core contents, excellent level

Students shall be familiar with the basic structures, properties and operating principles of machinery used in timber transport and harvesting, so as to command and be able to detail the structures and operating principles of basic technical systems used in industrial machinery, such as general power transmission, engines, hydraulics and electrotechnology. Through application of this basic knowledge, they shall know how to read and interpret diagrams showing operating systems of forest machinery and lorries and command systematic troubleshooting. Students shall know how to perform periodic servicing tasks and equivalent maintenance work in accordance with general service and repair manuals. They shall be able to take the requirements of occupational health and safety and economy into account in their service and repair work. They shall also be able to read and interpret technical literature in an international language. Students shall command the requirements of quality and environmental protection in machinery servicing and repair tasks.

▲ The core content comprises
the general structures and maintenance of vehicles and machinery,
motor and power transmission techniques, electrical and hydraulic systems as well as substances and supplies used in maintenance.

Assessment, satisfactory (S1)

Students shall know how to
- detail the structural properties of different types of forest machinery;
- locate the simplest defects and failures;
- carry out daily servicing of forest machinery;
- take the requirements of environmental protection into account in their work.
3 OBJECTIVES, CORE CONTENTS AND ASSESSMENT OF STUDIES

3.2.9 PLANNING OF MECHANISED TIMBER HARVESTING, 6 CREDITS

Objectives and core contents, excellent level

Students shall be capable of independently planning a stand marked for timber harvesting as appropriate in terms of environmental maintenance and timber harvesting. They shall command timber storage and dimensional and quality requirements. They shall be able to detail the most common working methods of mechanised harvesting and the requirements set for harvesting traces. Students shall know how to take safety hazards involved in timber harvesting into account. Students shall be able to detail the logistics chain of timber procurement from the stump to the mill.

▲ The core content comprises:
planning a marked stand for mechanised timber harvesting, roundwood products and their quality requirements as well as assessment of harvesting traces.

Assessment, satisfactory (S1)

Students shall know how to
• describe the main principles of planning a marked stand;
• identify the most common roundwood products and their quality requirements;
• take the requirements of environmental protection into account in timber harvesting.

OPTIONAL STUDIES

3.2.10 FOREST HAULAGE, 25 CREDITS

Objectives and core contents, excellent level

Students shall know how to drive a forestry tractor independently in varying conditions in a financially profitable manner. They shall know how to keep a forestry tractor in working condition and to transport forestry tractors on lorries. Students shall be able to pass the class C driving test. Students shall be capable of preparing a transport plan for a timber harvesting site as appropriate in terms of the environment and occupational health and safety. They shall be capable of operating and making use of IT applications used in forest machinery for controlling machine functions and for data transmission.
Students shall be capable of co-operating with different parties involved in the timber harvesting chain.

▲ The core content comprises
operation and maintenance of a forestry tractor, logistics in the timber harvesting chain, IT control systems for forest machinery and the class C driving test.

Assessment, satisfactory (S1)

Students shall know how to
• work with guidance in easy timber harvesting conditions, mastering the basics of operational technology of a forestry tractor and taking environmental protection considerations into account;
• make use of the most common IT applications used in forest machinery.

3.2.11 FORESTRY TRACTOR TECHNOLOGY, 10 CREDITS

Objectives and core contents, excellent level

Students shall be sufficiently familiar with the structural properties and operating principles of forestry tractors to be able to adjust the functionality of the machinery for their own needs. They shall be capable of determining the working condition of their machinery. Students shall be capable of carrying out servicing tasks safely, punctually and independently. They shall know how to use the fault detection system of the machinery and be capable of reading and interpreting circuit diagrams. They shall be able to assess the repair needs of their machinery and be capable of interpreting the extent of any damage. They shall also command the key terminology used in forestry tractor technology and forest haulage in an international language and be capable of using the language to communicate with their working community. They shall be able to take occupational safety risks into account in their work.

▲ The core content comprises
the structure and maintenance of a forestry tractor, its power transmission, electrical equipment and hydraulic systems, troubleshooting and assessment of the need for repairs.
Assessment, satisfactory (S1)

Students shall know how to
• explain the structures of forestry tractors in general terms;
• describe the functionality of the machinery;
• perform daily servicing tasks safely and in accordance with instructions;
• assess repair needs;
• also use key terminology of forestry tractor technology and forest haulage in an international language.

3.2.12 MECHANISED TIMBER PRODUCTION, 25 CREDITS

Objectives and core contents, excellent level

Students shall command the operating technology of at least one timber production machine (harvester) in sufficient detail to enable them to produce timber in an independent and profitable manner. They shall be capable of locating malfunctions in the machine and of assessing repair needs as well as of carrying out daily servicing and repairs. They shall be capable of independent planning of marked stands and their own work and of taking instructions and regulations governing environmental protection, quality management and occupational safety in timber harvesting into account in their work.

Students shall be able to pass the class C driving test and to transport forest machinery on lorries. Students shall be capable of operating and making use of IT applications used in forest machinery for controlling machine functions, for data transmission and for positioning. They shall also be capable of readjusting their working methods in accordance with instructions provided by the employer through data communications and to determine their position at a marked stand by means of the global positioning system installed in their machinery.

▲ The core content comprises
operation and maintenance of machinery, environmental protection and quality monitoring in timber production, IT control systems of the machinery and the class C lorry driving test.
Assessment, satisfactory (S1)

Students shall know how to
• explain the basics of the operating technology of timber production machinery;
• work with guidance in undemanding timber harvesting conditions;
• take the significance of environmental management into account in mechanised timber harvesting;
• carry out daily servicing tasks;
• make use of the most common IT applications used in forest machinery.

3.2.13 TECHNOLOGY OF TIMBER PRODUCTION MACHINERY, 10 CREDITS

Objectives and core contents, excellent level

Students shall be sufficiently familiar with the structures, properties and operating principles of machinery to be able to make use of the machinery in timber production. They shall be able to detail the factors influencing the working condition of their machinery and be capable of contributing to achievement of the best possible results by making adjustments. Students shall be capable of carrying out servicing tasks independently, punctually and in accordance with occupational safety requirements. They shall know how to use the troubleshooting system of the machinery and be capable of reading and interpreting circuit diagrams. They shall be able to assess the repair needs of their machinery and be capable of interpreting the extent of any damage. They shall also command the key terminology of mechanised timber production in an international language and be capable of using the language to communicate with their working community.

▲ The core content comprises
the structure and maintenance of the machinery, its power transmission, electrical equipment and hydraulic systems, troubleshooting and assessment of the need for repairs.
Assessment, satisfactory (S1)

Students shall know how to
• explain the structure of a machine in general terms;
• carry out simple adjustment and servicing tasks in accordance with instructions provided;
• describe the properties of the machinery that influence its operation and operational control;
• assess repair needs and determine the locations of the most important components.

3.2.14 MAINTENANCE, SERVICING AND REPAIR TECHNOLOGY, 25 CREDITS

Objectives and core contents, excellent level

Students shall command common servicing and repair techniques used for maintenance of industrial machinery, so as to be capable of functioning independently in maintenance assignments of and as experts in modern timber harvesting machinery. They shall command the technologies used in at least one modern make of forest machinery or vehicle so comprehensively that they are capable of working as forest machinery mechanics on the make in question. They shall also command the key terminology of machinery repairs in an international language and be capable of using the language to communicate with their working community. They shall be capable of determining and repairing those sites that can be repaired by welding.

▲ The core content comprises

- general and make-specific servicing and repair techniques,
- troubleshooting of and repairs to motors and power transmission in forest machinery, repair technology of hydraulic systems and electrical equipment and welding techniques.

Assessment, satisfactory (S1)

Students shall
• be capable of performing fairly demanding machinery servicing and repair tasks;
• be able to take the requirements of environmental protection into account.
3.2.15 TIMBER TRANSPORT BY LORRY, 25 CREDITS

Objectives and core contents, excellent level

Students shall know how to carry out transportation tasks assigned to them in a safe and economical manner even in difficult situations in cross-country and forest conditions. They shall know how to drive and operate timber lorries and log loaders (loading cranes) independently. They shall know how to position the load into the loading space of the vehicle in accordance with statutes and regulations. Students shall be capable of assessing and reporting on the amount of timber remaining at the storage site. They shall be able to comply with regulations governing working hours and occupational safety. Students shall be capable of locating any defects, damage and leaks detected or at least of clearly notifying the employer of any such faults. They shall know how to use the GPS equipment and electronic data transmission systems of timber lorries. Students shall be able to pass the class CE driving test. They shall be able to act appropriately in different customer service situations.

▲ The core content comprises
long-distance transport of timber by lorry, acts, decrees and regulations governing timber transport and road traffic, as well as data transfer and global positioning systems in timber transport.

Assessment, satisfactory (S1)

Students shall
• know how to drive a timber lorry safely and in accordance with statutes and regulations;
• know how to operate a log loader so as to be able to load timber safely;
• be able to report any defects detected;
• be able to pass the class CE driving test.
3.2.16 TIMBER LORRY TECHNOLOGY, 10 CREDITS

Objectives and core contents, excellent level

Students shall be able to detail the basic structures, properties and operating principles of a vehicle used for timber transportation and those of a log loader. They shall know how to service and repair defects detected during operation and report any additional measures that may be required. Students shall know how to service the hydraulic, power transmission, electrical, engine and fuel systems of a timber lorry. They shall also command the key terminology of timber lorry technology and timber lorry transport in an international language and be capable of using the language to communicate with their working community.

The core content comprises
- the structures of timber lorries and log loaders as well as the servicing and check points, the chassis, control, power transmission, steering and brake equipment of lorries as well as their electrical and hydraulic systems.

Assessment, satisfactory (S1)

Students shall know how to
- detail the structures of a timber lorry;
- locate relatively minor defects that may occur during operation;
- repair leaks in the hydraulic system and replace leaking log loader hoses;
- interpret damage detected and be capable of clearly forwarding information about such damage;
- check the daily servicing and check points in a timber lorry;
- also use key terminology of timber lorry technology in an international language.
STUDY PROGRAMME IN THE MULTIPLE USE OF FORESTS

3.2.17 KNOWLEDGE OF NATURE, 8 CREDITS

Objectives and core contents, excellent level

Students shall be able to provide details of the basic features of Finnish forest nature and the main phases of its evolution and the development of the use and management of forests.

▲ The core content comprises
the history of the evolution of Finnish forests.

Students shall be able to identify the most common plants and animals found in forests within their own region as well as the habitats of these species and to describe factors influencing their degree of endangerment. Students shall be able to detail the structure and properties of soil and the effects of the soil, climate and weather on Finnish nature and know how to apply this knowledge in their work.

▲ The core content comprises
knowledge of forest nature.

Students shall know how to use and apply information that they have acquired in different types of research and development tasks of the forest environment, so as to be able to function as research assistants, for example. They shall be sufficiently familiar with some of the information acquisition methods used in forestry to be able to function in related work assignments.

▲ The core content comprises
acquisition of information on forest nature.

Assessment, satisfactory (S1)

Students shall know how to
• explain the evolution of Finnish forests in general terms;
• identify the most important plants and animals found in forests and other environments within their region and the typical habitats of these species;
• describe the effects of the soil, climate and weather on Finnish nature;
• collect information on forest nature with guidance.
3.2.18 MULTIPLE USE OF FORESTS, 24 CREDITS

Objectives and core contents, excellent level

Students shall be able to move about and survive in nature. They shall know how to use communications and positioning equipment as needed in their work and to guide customers in its use.

Students shall be able to detail the opportunities provided by multiple use of forests and the key principles of relevant legislation. They shall be able to command sustainable use of forest nature and its various uses.

▲ The core content comprises survival in nature and the opportunities provided by multiple use of forests.

Students shall command the basic skills of collecting gifts of nature found in their region and game management as well as hunting and fishing. They shall know how to make systematic use of opportunities provided by gifts of nature for household consumption, the retail trade, nature tourism and recreational use of forests.

▲ The core content comprises utilisation of gifts of nature.

Students shall know how to carry out work assignments involved in nature tourism and in planning, management and construction of outdoor exercise and recreation areas. They shall be able to take user and customer needs into account and to handle different customer situations. They shall know how to operate and service the transport equipment that they need, woodworking machinery and any other machinery and equipment required in their work, taking safety requirements into account. They shall know how to guide their customers in the use of such machinery and equipment.

▲ The core content comprises recreational use of forests and nature tourism.
Assessment, satisfactory (S1)

Students shall know how to
• apply the basic skills involved in moving about and surviving in nature;
• operate the most common communications and positioning equipment with guidance;
• detail the forms of and opportunities provided by multiple use of forests;
• collect gifts of nature, perform game management tasks and manage the most important hunting and fishing tasks;
• make use of gifts of nature to a higher extent than for household consumption;
• carry out work assignments related to outdoor exercise and recreation areas and nature tourism;
• safely use transport equipment, woodworking machinery and any other machinery and equipment required at work.

3.2.19 ENVIRONMENTAL PROTECTION AND NATURE CONSERVATION, 17 CREDITS

Objectives and core contents, excellent level

Students shall be able to detail the key contents of legislation governing forests and nature conservation and to take the effects of these into account in the use of forests. In addition, they shall be able to explain the effects of other environmental legislation, land use planning and town and country planning systems and the objectives of nature conservation programmes and networks.

▲ The core content comprises legislation and planning and regulation systems.

Students shall know how to attend to the health of forests and take the most significant causes of forest damage and other factors influencing forest health into account in their work. Students shall also be able to take account of the effects of forest management, atmospheric pollution and acidification on soil and aquatic nature. They shall be able to detail the environmental requirements for forest improvement work.

▲ The core content comprises conservation of forest nature.
3 OBJECTIVES, CORE CONTENTS AND ASSESSMENT OF STUDIES

Students shall be able to detail valuable forest habitats and recommendations for ecosystem management of commercial forests and they shall know how to take these into account in forest management. They shall be able to describe the forest certification system and take the requirements of certification into account in forest management.

▲ The core content comprises valuable habitats in forest ecosystems and certification of forests.

Students shall know how to manage urban and scenic woods, timberline forests and other environmental forests, taking customer needs, environmental characteristics and even inconsistent requirements into account. They shall also be able to take safety considerations and related measures into account in their work. They shall know how to use the machinery, equipment and tools that they need in a safe and ergonomic manner. Students shall be able to assess and improve the quality and content of their work.

▲ The core content comprises management of environmental forests.

Assessment, satisfactory (S1)

Students shall know how to
• detail the contents of key legislation and the objectives of planning and regulation systems;
• identify the most significant causes of forest damage and other factors influencing forest health;
• describe the effects of work carried out in forests on the forest environment;
• identify valuable forest habitats and explain the significance of forest certification;
• manage environmental forests with guidance.
3.2.20 CUSTOMER SERVICE, 6 CREDITS

Objectives and core contents, excellent level

Students shall be able to detail the special features of forestry and nature-based entrepreneurship and the prerequisites for economic activities. They shall be able to take customer needs and wishes into account in their work.

▲ The core content comprises entrepreneurship and customer service skills.

Students shall be able to detail and justify the working methods that they have used and to provide advice and guidance for their customers, also using a foreign language, where necessary.

▲ The core content comprises guidance and counselling skills.

Students shall be able to provide information and carry out marketing efforts as appropriate in each particular situation and for each specific customer.

▲ The core content comprises public relations and marketing.

Assessment, satisfactory (S1)

Students shall know how to
• detail the principles of entrepreneurship and customer service;
• detail and justify simple tasks relating to forest ecosystem management;
• plan and implement information and marketing measures for a certain event with guidance or as part of a team.
3 Objectives, Core Contents and Assessment of Studies

Optional Studies in All Study Programmes

3.2.21 Forestry Entrepreneurship, 5 Credits

Objectives and core contents, excellent level

Students shall be able to detail the contents of a forest plan and make use of the plan in their work. They shall be able to examine the profitability of operations using calculations. They shall know how to carry out forest work and to market their products independently.

▲ The core content comprises wood production on a forest estate.

Students shall be sufficiently familiar with their own field of activity to be able to make use of the opportunities provided by the field as entrepreneurs or employees. They shall be able to explain the meaning of entrepreneurship and the basic functions of a business enterprise. They shall be capable of detailing the foundations of profitable entrepreneurship and know how to calculate earnings and expenses. They shall be capable of monitoring and assessing their operations and know how to use expert services for business operations.

▲ The core content comprises entrepreneurship.

Assessment, satisfactory (S1)

Students shall know how to
• describe job opportunities available to them in their field of activity;
• examine the opportunities provided by an estate’s forests with the aid of an advisor;
• describe the basic functions of a business enterprise;
• explain the significance of operational monitoring and expert services to business operations.
3.2.22 UTILISATION AND PROCESSING OF WOOD, 5 CREDITS

Objectives and core contents, excellent level

Students shall be able to provide a description of the most common wood raw materials used in wood processing and ways of obtaining them as well as other opportunities to utilise wood, such as sawn goods, tar, charcoal, burl and decorative craft, ornamental conifer sprigs, Christmas trees, log products, etc.

Students shall know how to process wood to produce marketable goods, using safe methods and various tools and machinery.

▲ The core content comprises wood processing.

Students shall be able to price and market their products.

▲ The core content comprises marketing.

Assessment, satisfactory (S1)

Students shall know how to
• describe the opportunities provided by utilisation and processing of wood;
• make simple products from wood with guidance;
• detail the basic requirements set for a product by its intended application.

3.2.23 FOREST HAULAGE SKILLS, 5 CREDITS

Objectives and core contents, excellent level

Students shall know how to transport timber using a forestry tractor, an agricultural tractor equipped for forest use, a snowmobile, a utility ATV or a horse, applying working methods appropriate in terms of ergonomics and occupational safety. They shall be able to plan logging trails and storage sites, taking the needs of forest and long-distance haulage into account. They shall be able to examine the profitability of operations by preparing cost estimates. They shall know how to measure or assess the quantity and quality of their work. They shall be able to price their work.
3 OBJECTIVES, CORE CONTENTS AND ASSESSMENT OF STUDIES

▲ The core content comprises forest haulage skills.

Students shall be able to justify the most appropriate methods for their chosen form of forest haulage and factors influencing its economic efficiency. Students shall be capable of using haulage equipment independently and of performing daily and weekly servicing operations as well as minor repairs in forests.

▲ The core content comprises maintenance of haulage machinery.

Assessment, satisfactory (S1)

Students shall know how to
• transport timber from the woodlot to the landing with guidance, using their chosen forest haulage equipment;
• work safely and ergonomically;
• assess the quantity and quality of their work;
• service haulage equipment with guidance.

3.2.24 FUEL WOOD HARVESTING, 5 CREDITS

Objectives and core contents, excellent level

Students shall be able to detail the most common methods and machinery used to harvest fuel wood and the prerequisites for and requirements of their profitable use. Students shall know how to work with at least one type of equipment used in the fuel wood harvesting chain and to attend to its maintenance. Students shall be able to detail the silvicultural and environmental effects of fuel wood harvesting and the requirements set by fuel wood harvesting at different stages of harvesting.

▲ The core content comprises
• machinery and working methods used in fuel wood harvesting,
• operation and servicing of a harvester and the silvicultural and economic significance of fuel wood harvesting.
Assessment, satisfactory (S1)

Students shall know how to
• detail the most common methods and machinery used to harvest fuel wood;
• describe the silvicultural and environmental effects of fuel wood harvesting.

3.2.25 MECHANISED FOREST IMPROVEMENT WORK, 5 CREDITS

Objectives and core contents, excellent level

Students shall be able to detail the machinery and working methods used in forest cultivation, soil preparation and drainage and in construction of forest roads. They shall be capable of independently operating at least one machine used for a specific form of forest improvement work and of keeping the machine in working condition. Students shall be capable of working so as to take the silvicultural and environmental effects of forest improvement work into account.

▲ The core content comprises
machinery and methods used in forest improvement work, operation and servicing of machinery, environmental impacts and economic and silvicultural significance.

Assessment, satisfactory (S1)

Students shall know how to
• detail different types of machinery and working methods used in forest improvement;
• work with a forest improvement machine with guidance;
• detail the silvicultural and environmental effects of forest improvement work.
3.2.26 FORESTRY AND TIMBER HARVESTING, 5 CREDITS

Students shall select at least two of the following core content areas, depending on their own specialisation.

Objectives and core contents, excellent level

Students shall be able to determine the maturity of a forest stand for regeneration, the improvement and maintenance needs of forest soil and the methods to use, considering the needs of the stand to be established and the individual species of trees. They shall know how to carry out forest regeneration work taking ecosystem management considerations into account.

▲ The core content comprises forest regeneration.

Students shall be capable of specifying the thinning needs of seedling, young and middle-aged stands, using a forest plan where necessary. They shall know how to use stand cultivation models. They shall be able to explain the significance of thinning operations and selection of tree species to wood production, forest health and the environment. They shall know how to carry out wood production work safely and applying correct working methods. They shall be capable of using and servicing wood production tools and equipment independently. Students shall be capable of explaining the significance of and opportunities for forest improvement. They shall know how to take the opportunities for and significance of cultivating special tree species into account in wood production.

▲ The core content comprises forest cultivation.

Students shall be able to locate and appropriately mark the boundaries of a stand for harvesting in the terrain, using a map and information included in the forest plan. Students shall be familiar with various timber harvesting methods and they shall know how to apply these to planning a marked stand.

▲ The core content comprises planning a marked stand.

Students shall know how to plan and fell a marked stand in accordance with dimensional and quality requirements provided. They shall master
safe and ergonomic working methods. They shall know how to use, service and repair the tools and equipment that they need in their work.

▲ The core content comprises
planning and implementation of timber harvesting.

Assessment, satisfactory (S1)

Students shall know how to
• describe forest regeneration methods;
• carry out forest regeneration work with guidance;
• determine the thinning needs of seedling, young and middle-aged stands with guidance;
• explain the significance of thinning to trees being cultivated;
• detail the opportunities for cultivating special tree species;
• mark the boundaries of a stand for harvesting in the terrain with guidance and identify the boundary marks used in planning marked stands;
• fell a marked stand with guidance and in accordance with dimensional and quality requirements provided;
• command the basic timber production technique;
• use and service wood production and timber harvesting tools and equipment with guidance.

3.2.27 NATURE TOURISM, 5 CREDITS

Objectives and core contents, excellent level

Students shall be able to detail tourism opportunities provided by nature within their own region and to describe the success factors of original tourism products. They shall know how to plan and implement short-term nature tours and events in a customer-focused manner. They shall be able to manage in guidance, advisory and communication situations and know how to market their own operations.

▲ The core content comprises
basic skills in nature tourism.

Students shall be able to detail the opportunities provided by their own field of activity for an entrepreneur or an employee. They shall know how to create a feasible business idea for a tourism enterprise. They shall be able to describe the foundations of profitable entrepreneurship and know how to calculate earnings and expenses. They shall be capable
of monitoring and assessing their operations and of using expert services for business operations.

▲ The core content comprises entrepreneurship.

Assessment, satisfactory (S1)

Students shall know how to
• detail the opportunities for tourism entrepreneurship provided by nature within their own region;
• plan and implement short-term nature tours and events with guidance;
• guide and advise customers;
• describe the significance of operational monitoring and expert services to business operations.

3.2.28 BASICS OF SILVICULTURE, 5 CREDITS

Objectives and core contents, excellent level

Students shall be able to identify the most common species of park trees found in their own region at different stages of their development, in order to be able to decide on silvicultural measures appropriate for such trees. They shall be able to detail the effects of habitat factors on tending to trees. They shall be able to identify the most common tree diseases, in order to carry out silvicultural measures in a proper and timely manner.

▲ The core content comprises determination of the growth capacity of a tree.

Students shall be able to offer their vocational skills for use in silvicultural assignments. They shall know how to use and service the tools that they need in an appropriate manner. They shall know how to perform silvicultural work, such as preparing a substrate, removing branches, identifying diseased trees and performing measures on these as appropriate. They shall be able to detail potential applications for felled trees. They shall know how to attend to their own safety and to that of other people while working.

* The core content comprises command of silvicultural methods.
Assessment, satisfactory (S1)

Students shall know how to
• identify the most common species of park trees found in their own region and the different stages of their development;
• treat tree diseases with guidance;
• select and service appropriate silvicultural tools with guidance;
• carry out silvicultural work with guidance;
• attend to their own safety and to that of other people.

3.2.29 OTHER OPTIONAL STUDIES, 10 CREDITS

In a curriculum approved by an education provider, the vocational studies may include, in addition to the study modules set out in Sections 3.2.21–3.2.28, studies conforming to regional or local working life needs, other studies consolidating or extending vocational studies, core subjects or general upper secondary school studies as optional studies. The scope of the studies referred to herein may be no more than 10 credits in the qualification.

3.3 OBJECTIVES, CORE CONTENTS AND ASSESSMENT OF FREE-CHOICE STUDIES

Students shall include 10 credits of free-choice studies in their studies, and they shall be provided with an individual study plan concerning the objectives, core contents and assessment of these studies. Free-choice studies may be vocational studies or core subjects in students’ own sector of education or in other sectors, studies preparing for further study or for the completion of the general upper secondary school matriculation examination, work experience or guided interests, which support the general and vocational objectives of education and training and the growth of students’ personalities.

3.4 OBJECTIVES OF STUDENT COUNSELLING

Student counselling worth at least 1.5 credits shall be included in students’ studies. The objective of these studies shall be for students to know how to function in their school community, to plan their studies and to commit to study, which requires them to be aware of the studies and options included in the qualification. Students shall be able to follow the
accumulation of credits and seek support for planning their studies. They shall know how to seek support for any possible difficulties concerning study and also apply for work or a study place even abroad.

3.5 OBJECTIVES AND ASSESSMENT OF THE FINAL PROJECT

The studies include a final project with a scope of at least two credits. Students shall know how to prepare a final project, which may be a set of assignments either integrating the studies or demonstrating specialised competence in one sector of the qualification, such as a written paper, a multimedia or hypermedia project, a report, a project or a product, fulfilling the objectives of the qualification.

Students shall know how to plan their final project according to their own interests and vocational orientation. When preparing the final project, they shall work independently, consistently and systematically. They shall know how to find the information needed in the final project from different sources and to adopt a critical approach towards the information. They shall be able to combine competence from different sectors of the qualification and to use appropriate working methods. They shall be able to independently resolve problems related to their final project and to evaluate the progress and results of the final project. They shall be able to present their final project both in a written and spoken form.

Assessment, satisfactory (S1)

Students shall know how to
• complete a set of assignments combining the basic tasks of the field or focusing on an individual sector as their final project;
• plan their final project with guidance;
• seek information from key sources with the aid of guidance;
• choose appropriate working methods for their final project with guidance;
• ask for help, where necessary, to resolve any problems occurring in preparing the final project;
• evaluate the progress of their final project with the aid of guidance and agree on deviations;
• evaluate the success of their final project;
• present their final project understandably in a written or spoken form.
4

STUDENT ASSESSMENT

4.1 ROLES AND IMPLEMENTATION OF ASSESSMENT

1 ROLES AND OBJECTIVES OF ASSESSMENT

In addition to the provisions of the Vocational Education and Training Act (630/1998, Section 25), assessment shall support the development of the positive self-concept and growth of students as competent people. Assessment shall be based on the students own self-assessment and assessment discussions between individual students, teachers and, during on-the-job learning periods, workplace instructors.

In addition to offering guidance to students, assessment shall provide information on their competence for teachers and employers and for the purposes of applying for further education.

2 IMPLEMENTATION OF ASSESSMENT

In addition to the provisions of the Vocational Education and Training Decree (811/1998, Sections 10 and 11), student assessment shall be qualitative. In other words, students’ competence shall be compared with the objectives of the study modules and with the assessment criteria drawn up on the basis of these. Assessment of study units shall support students in achieving the objectives of the study modules. When determining the grade for a study module, competence shown at the final stage shall be emphasised. Competence shall be verified by means of skills demonstrations to prove the achievement of the vocational objectives set in the curriculum. The assessment results of the study units may not be added up, divided or weighted mechanically.

Assessment methods shall be chosen such that they measure the achievement of the objectives set, are applicable to the study methods used and support students’ learning. As students can express their competence in different ways, they shall be provided with the opportunity to demonstrate their competence in other ways besides in writing. Particularly in cases of disability, illness or other similar learning difficulties, such as dyslexia, the assessment method best suited to each individual student shall be applied.
Prior to the commencement of studies, all students and all those participating in assessment shall be informed of the principles of assessment and their application. This includes information on the roles of assessment, the targets of assessment, the composition of a grade, the grading scale and requirement levels, improving a grade and studies required to progress, assessment of on-the-job learning, rectification of assessments, assessment of accredited studies, documentation of grades and the content of the study record card and qualification certificate.

3 GRADING

In addition to the provisions of the Vocational Education and Training Decree (811/1998, Section 10), grades shall be awarded for all study modules conforming with the National Core Curriculum, including other optional studies incorporated in the vocational studies.

Where a student has studied in accordance with Section 12 of Act 630/1998, a reference shall be marked against these studies on the qualification certificate and a footnote, ‘completed in compliance with Section 12 of Act 630/1998’, shall be included at the bottom.

Where core subjects have also been studied as free-choice studies, these may be combined with the assessment of the core subjects. In such cases, the scope of the core subjects exceeds 20 credits. These studies shall be marked in connection with free-choice studies with a footnote ‘completed in connection with core subjects’.

Separate grades shall be awarded for the core subjects (20 credits) determined by the Government. The core subjects included in the vocational studies shall be assessed as part of vocational study modules. These studies shall be detailed in the study record card awarded to students for accreditation and further study.

It shall also be possible to approve a section of a study module as completed or to accredit it without awarding a grade. In such cases, it shall be ensured that the student can be awarded a grade for the study module on the qualification certificate. The final project shall be assessed as part of those study modules, in which it is incorporated. A separate grade shall also be awarded for the final project and shall be marked on the qualification certificate.

Competence demonstrated during the on-the-job learning period shall be assessed as part of those vocational study modules, in which on-the-job learning is included. The scope of on-the-job learning shall be marked separately on the qualification certificate, but no separate grade shall be provided.
4 ACCREDITATION

In addition to the provisions of the Vocational Education and Training Act and Decree (630/1998, Section 30; 811/1998, Section 13), accreditation of studies shall avoid overlaps in studies and shorten the duration of studies. Where students transfer from one qualification to another or from general upper secondary school to vocational upper secondary education and training, they shall be accredited for at least the completed core subjects and free-choice studies. Summer jobs and previous work experience shall be accredited, provided that the competence acquired through these is determined to conform with the objectives of the curriculum.

The educational institution shall compare conformance of studies with the curriculum in terms of objectives and core contents. Where necessary, the correspondence of competence shall be verified by means of different skills demonstrations. Accreditation shall be promoted by developing various forms of assessment to facilitate it.

Where a student’s accreditable previous studies or studies completed simultaneously at some other educational institution compensate for a whole study module, the grade shall be included on the certificate. If the grading scale is different, the conversion formula for grades set out in Chapter 4.3 shall be applied. The name of the educational institution that awarded the grade shall be transferred to the certificate. Where no grade has been awarded for studies completed elsewhere, separate assessment shall be arranged.

5 RETAKING STUDIES

The arrangements for retaking studies shall be governed by the provisions of the Vocational Education and Training Decree (811/1998, Section 12).

6 REASSESSMENT AND RECTIFICATION OF ASSESSMENTS

Rectification of assessments shall be governed by the provisions of the Vocational Education and Training Decree (811/1998, Section 15).
4.2 TARGETS AND CRITERIA OF ASSESSMENT

The targets and criteria of assessment shall be derived from the objectives set out in the National Core Curriculum and the Requirements of the Competence-based Qualification. Assessment shall focus on the common emphases and the core skills common to all fields, as well as the command of working methods, tools, material and work processes, occupational safety and the knowledge that forms the foundation for work.

The assessment criteria for the study modules shall be determined by educational institutions on the basis of the satisfactory, good and excellent levels of competence defined in the following paragraphs.

**Satisfactory:**
Students shall be able to find employment in an occupational field relevant to the qualification and in assignments conforming with the study programme, irrespective of some deficiencies in work skills and theoretical knowledge. Students shall know how to apply the most common working methods, tools and materials and master the basic tasks in the forestry sector. Students shall be able to function in a familiar environment and in familiar interactive situations. They shall know how to use the skills they have absorbed and the knowledge that forms the foundation for work in familiar and regular situations. They shall know how to seek information related to their work with guidance and to present it in an understandable form in writing or orally. They shall perform the tasks assigned to them and know how to evaluate themselves and the success of their work. They shall observe working hours, occupational safety instructions, other agreements and instructions and also negotiate any deviations.

**Good:**
Students shall know how to apply the working methods, tools and materials in the forestry sector. They shall master the key work assignments in their field. Students shall know how to function in different situations and in groups as well as how to use the skills they have absorbed and the knowledge that forms the foundation for work in new situations. They shall be able to classify, compare and analyse the information they have acquired and to modify it into a useful form. Students shall be able to perceive their work as a whole. They shall be able to take account of the special needs of their workplace. Students shall know how to apply rules and instructions to different situations and how to observe occupational safety instructions. Students shall perform the tasks assigned to them on their own initiative and evaluate themselves and their work in a diverse manner. They shall be able to evaluate the validity and reliability of information.
Excellent:
Students shall be able to make conscious choices of the working methods, tools and materials best suited to their work and to use the methods and tools correctly. They shall be able to evaluate and develop their working methods. They shall know how to function in an active and encouraging manner in different situations, in groups and with different interest groups. They shall be able to find new solutions and to resolve conflict situations. Students shall also be able to perform tasks other than those assigned to them independently. They shall know how to develop their own work, working environment and occupational safety. They shall know how to develop and evaluate themselves diversely so as to be able to function in changing conditions. Students shall be able to evaluate the validity and reliability of the information they have acquired. They shall know how to classify, compare and analyse the information they have acquired, to modify it into a useful form and to draw conclusions from it. They shall know how to set priorities, to make plans and to consider the effects of different options, so as to be able to choose the most appropriate on each occasion. Students shall be able to take account of the special needs of the workplace in their actions. They shall be able to perceive their work as part of the activities of their workplace and its operating environment as a whole.

4.3 GRADING SCALE AND CONVERSION OF GRADES

1 GRADING SCALE

The grading scale shall be governed by the provisions of the Vocational Education and Training Decree (811/1998, Section 10).

2 CONVERSION OF GRADES

Students shall be assessed according to the assessment processes at the educational institution, in which they perform study modules or parts thereof at any particular time. Where the grading scales of different educational institutions differ from each other, the educational institution accrediting the studies shall convert the grades and determine the equivalence in favour of the student. The grades shall be converted according to the following table:
4 STUDENT ASSESSMENT

<table>
<thead>
<tr>
<th>Grading scale at general upper secondary school (5–10)</th>
<th>Grading scale at vocational institution (1–5)</th>
<th>Scale (1–3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>excellent</td>
<td>excellent</td>
<td>5</td>
</tr>
<tr>
<td>very good</td>
<td>excellent</td>
<td>5</td>
</tr>
<tr>
<td>good</td>
<td>good</td>
<td>4</td>
</tr>
<tr>
<td>satisfactory</td>
<td>satisfactory</td>
<td>2</td>
</tr>
<tr>
<td>acceptable</td>
<td>satisfactory</td>
<td>1</td>
</tr>
<tr>
<td>fair</td>
<td>satisfactory</td>
<td>1</td>
</tr>
</tbody>
</table>

4.4 SKILLS DEMONSTRATIONS

The provisions governing the skills demonstrations shall be issued separately.

4.5 CERTIFICATES

1 QUALIFICATION CERTIFICATE

The qualification certificate is an official document, the content of which shall comply with the relevant National Core Curriculum or the Requirements of the Competence-based Qualification. The award of a qualification certificate shall be governed by the provisions of the Vocational Education and Training Decree (811/1998, Section 13).

In apprenticeship training provided in compliance with the National Core Curriculum, the qualification certificate shall be awarded once a student has completed the studies included in the qualification to an acceptable standard.

The certificate of a qualification completed in compliance with the National Core Curriculum shall include the following information:

- the name of the education provider and/or the educational institution awarding the certificate;
- the name and social security number of the student;
- the name of the completed qualification and the scope 120 credits/3 years;
- the name of the completed study programme;
- the qualification title;
- the completed studies, their scopes and grades;
- the final project included in the total credits, its scope, title and grade;
• any on-the-job learning included in studies, its scope and sector or extensive assignments of on-the-job learning, expressed in no more than two lines;
• the date and signatures;
• an official stamp.

The following information shall be included on the reverse or on an extra sheet:
• the contact information for the education provider or the educational institution awarding the certificate;
• the name of the education provider or the educational institution, unless mentioned above;
• authorisation granted by the Ministry of Education to provide education;
• legislation governing the education and training;
• a note to the effect that the education and training have been implemented in compliance with a National Core Curriculum determined by the National Board of Education;
• the prerequisites for admission and national level of qualification;
• the level of the qualification in the EC classification;
• eligibility for further study provided by the qualification;
• definitions of the scope of qualification, year of study and credit;
• the grading scale;
• special provisions arising from certain occupations.

2 CERTIFICATE

In addition to the provisions of the Vocational Education and Training Decree (811/1998, Section 13) governing the award of a certificate, students shall be awarded a certificate for completed studies. In addition to grades, this shall also include participation in any such study modules, in which the student has not as yet received a grade. The certificate will also indicate the studies, which students are required to complete in order to receive the qualification certificate.

3 CERTIFICATE OF RESIGNATION

The award of a certificate of resignation shall be governed by the provisions of the Vocational Education and Training Decree (811/1998, Section 13).
4.6 ASSESSMENT IN SPECIAL NEEDS EDUCATION AND TRAINING

Assessment of students shall observe the same principles as applied in other cases. Where the objectives of the National Core Curriculum have been adjusted by virtue of Section 20 of Act 630/1998, an explanatory note shall be included on the certificate. Students shall be awarded a qualification certificate, even if the objectives of the qualification were adjusted. A footnote on the adjusted objectives shall be included on the qualification certificate. Assessment shall be performed in proportion to the adjusted objectives, which requires that assessment criteria shall be drawn up for the objectives. The grading scale shall be as generally applied. Students shall know that education and training completed in compliance with adjusted objectives may affect admittance to further education and their success therein.

Where the studies remain deficient of essential respects, a certificate for completed studies shall be awarded in lieu of the qualification certificate. A statement shall be appended to the certificate, indicating the best competencies of the student.

4.7 ASSESSMENT OF IMMIGRANTS

The learning outcomes of immigrant students and other students belonging to different language and cultural groups shall be assessed in the same manner as those of other students. Skills and knowledge shall be assessed through such methods that any possible deficiencies in language skills will not have an adverse effect on the grade.

If the native language of individual students is not Finnish or Swedish, their studies shall also be assessed in compliance with the objectives of Finnish/Swedish as a second language, irrespective of whether they have been provided with separate instruction in Finnish/Swedish as a second language. Where the teacher and student jointly assess the student’s skills in the Finnish/Swedish language to be on a par with those of native speakers, these skills shall be assessed in compliance with the objectives of the native language, Finnish/Swedish. The qualification certificate shall indicate which objectives have been applied to the assessment of student performance; nevertheless, the scale applied shall be 1–5.

If a student has not studied Swedish/Finnish as the other national language, the certificate shall indicate which language he or she has studied instead.
5

OTHER PROVISIONS

5.1 PROVISION OF STUDENT COUNSELLING

The qualification shall include at least 1.5 credits of student counselling. In addition, each student shall have the right to receive sufficient personal and other necessary educational guidance as part of their studies. In particular, each educational institution shall attend to the guidance of students faced with study difficulties (such as dyslexia), absences from education and training or difficulties related to life management.

Student counselling shall be implemented so as to ensure that students
• receive enough information on their education and training prior to its start and during it;
• receive information and experience of working life, entrepreneurship and occupations;
• familiarise themselves with and are provided with the opportunity for international contacts, study and work;
• receive support in regard to any possible problems related to their study and lives.

Students selected for vocational education and training shall be provided with information on the qualifications to be completed, the composition and contents of the studies involved, as well as the studies they may choose from other educational institutions according to their needs. Students shall be supported in making their choices. Students shall be provided with an individual study plan in accordance with their choices. When drawing up individual study plans, special attention shall be focused on those students, who have difficulties related to study or living during basic education or at the beginning of vocational education and training.

All staff shall participate in the guidance of students, but the main responsibility for planning rests with the student counsellor. In order to ensure the success of student counselling, co-operation shall be carried out internally between the experts within each educational institution, with students and their homes, between different educational institutions and with outside experts.
Vocational institutions shall develop their careers and recruitment services in co-operation with local employment offices and economic life and shall also promote students’ access to employment and further education.

5.2 ON-THE-JOB LEARNING

In addition to the provisions of the Vocational Education and Training Decree (811/1998, Section 5), the following provisions shall be observed in on-the-job learning:

On-the-job learning shall be focused, supervised and assessed study. The periods of on-the-job learning shall be sufficiently long and diverse in terms of occupational proficiency. At the beginning of studies, the periods shall be short, but once the skills and knowledge have accumulated, they shall be as long as possible, in order to give students the opportunity to learn sets of assignments and to take responsibility for their assignments.

On-the-job learning shall be planned together with local representatives from working life, taking the regional and local needs and opportunities of working life into account. Each vocational institution shall decide how to place on-the-job learning and its objectives in relation to the whole qualification in individual students’ individual study plans. The plan shall indicate the way in which learning at the educational institution and in workplaces complement each other in the achievement of the objectives of the qualification.

Students may also complete some on-the-job learning abroad and this shall be agreed in advance.

Students may complete on-the-job learning in a practice enterprise at the educational institution or through similar arrangements only in special circumstances and for very good reasons.

Each educational institution shall prepare students for the workplace and provide them with the opportunity to acquire vocational knowledge related to studies even during the period of on-the-job learning. In the workplace, special attention shall be attached to supervision and control as well as to the provision of feedback.

PROVISION

In addition to the provisions of the Vocational Education and Training Act (630/1998, Section 16), each education provider shall be responsible for arranging on-the-job learning places together with individual students.
The contract drawn up between the education provider and the employer shall cover the issues outlined in the Vocational Education and Training Decree (811/1998, Section 5).

Training carried out in workplaces shall usually be provided in such a manner that students are not in an employment relationship with their employers. In such cases, they shall be entitled to student financial aid and student social benefits, such as free meals and possible compensation for travel expenses. Notwithstanding, it shall also be possible to implement on-the-job learning in an employment relationship, where separately agreed.

**OCCUPATIONAL SAFETY**

In addition to the provisions of the Vocational Education and Training Act (630/1998, Sections 19 and 28), the following provisions shall be observed in terms of occupational safety:

All parties shall be clear about liabilities and insurance policies related to occupational health and safety, accidents and damages. Where necessary, they may specifically agree on liability issues. Prior to the commencement of work, the employer and the educational institution shall jointly ensure that the student is acquainted with the work and able to observe occupational safety instructions.

Provision of on-the-job learning shall comply with effective statutes governing occupational safety.

Assessment of on-the-job learning has been provided in Chapter 4.

**5.3 IMPLEMENTATION OF VOCATIONAL SPECIAL NEEDS EDUCATION AND TRAINING**

In order to achieve educational equality, everyone shall have equal opportunities to participate in vocational education and training and to find employment and a place in society as a full citizen after the education, irrespective of different learning capabilities.

Vocational education and training for those in need of special support shall be implemented in accordance with the principle of equality, primarily in regular vocational institutions in the same groups as other students or in special groups or both. Vocational special institutions shall be primarily responsible for the education of severely disabled people as well as for preparatory and rehabilitative education and guidance. In addition, they shall provide expert assistance to other educational
institutions. Vocational special needs education and training shall also be provided in the form of apprenticeship training.

Students in need of special educational or student welfare services due to disability, illness, delayed development, an emotional disorder or some other reason, shall be provided with special needs education and training, which shall safeguard learning, self-development and growth as a human being on the basis of personal capabilities. Special needs education and training shall include support measures and, where necessary, rehabilitation arranged in co-operation with providers of rehabilitation services.

The principles of special needs education and training shall be determined in the curriculum: objectives, implementation, teaching methods, support and special services, expert services, co-operation partners and responsibilities. Each educational institution shall reserve sufficient resources for special needs education and training. The whole school community shall promote the learning of students in need of special support.

By virtue of Section 20 of the Vocational Education and Training Act, need for special needs education and training shall be determined separately for each student on the basis of the National Core Curriculum. Achievement of the objectives shall be supported with the aid of an individually planned and guided learning process and different support measures.

**INDIVIDUAL EDUCATIONAL PLAN**

Each student in need of special needs education and training shall always be provided with an individual educational plan in writing. The plan shall include the qualification to be completed, the National Core Curriculum and the Requirements of the Competence-based Qualification observed in education and training, the scope of the qualification, the individual curriculum drawn up for the student, service and support measures provided for the student with the people responsible for them, as well as the National Core Curriculum for special needs education and training. It shall be drawn up together with the student and, where necessary, his or her parents or other guardians, as well as representatives of the previous school, teachers and experts in student welfare services.
INDIVIDUAL CURRICULUM

The individual educational plan shall include an individual curriculum, which shall determine the individual learning objectives of each student. These shall be based on the National Core Curriculum of the qualification, for which the student concerned is studying. In vocational education and training, instruction shall be planned in order that the students achieve, to the highest possible extent, the same qualifications as in other forms of vocational education and training. Objectives may be adjusted according to each student’s capabilities either so that the objectives of all education and training are adjusted or by only adjusting the objectives of one or more study modules. Education and training shall support students’ strong areas of competence, in order for them to find employment more easily. Special attention shall be attached to practice at work during the period of on-the-job learning. The students shall be informed of how they may receive the special services needed after education.

Students’ progress shall be monitored during education and training and personal objectives and support measures shall be readjusted as needed. Provisions governing the assessment of special needs students are outlined in Chapter 4.

5.4 EDUCATIONAL ARRANGEMENTS FOR IMMIGRANTS AND DIFFERENT LANGUAGE AND CULTURAL GROUPS

PROVISION OF STUDIES

The vocational objectives of immigrant students shall be as for other students.

The students at an educational institution, whose native language is other than the language of instruction of the educational institution, shall be supported particularly in language studies and through special educational arrangements.

The curriculum shall include a plan to provide education for immigrant students. Where the curriculum for education of immigrant students involves special educational arrangements in accordance with Section 21 of Act 630/1998, the following provisions shall apply:

Where necessary, it shall be possible to provide studies in the Finnish/Swedish language in accordance with the objectives of Finnish/Swedish as a second language (Chapter 3, Section 3.1.1.6). Finnish/Swedish as a second language means the language that has been learnt after the native language in a Finnish/Swedish-speaking environment.
The foreign language studies of students, whose native language is neither Finnish nor Swedish, may also be their own native language.

**NATIVE LANGUAGE STUDIES**

According to the Government Decision (213/1999) and Decree (616/2001), where a student’s native language is other than Finnish or Swedish, the education provider concerned may divide the compulsory studies in the native language and the other national language provided in Section 12(2) of the Vocational Education and Training Act in a way different from the provisions.

It shall be possible to divide the resources reserved for studies in the native language and the other national language flexibly into any possible studies in the student’s own native language, in Finnish/Swedish as a second language and in the other national language.

Students shall study the Finnish/Swedish language either
1) in accordance with the objectives of native language, Finnish/Swedish as a second language (Chapter 3, Section 3.1.1.6); or
2) in accordance with the objectives of native language, Finnish, or native language, Swedish (Chapter 3, Section 3.1.1.1 and 3.1.1.2), provided that their skills in the Finnish/Swedish language are assessed as being on a par with those of native speakers.

Students’ study plans may consist of studies in both of the subjects mentioned above. Where necessary, they may interrupt the studies to move on to study the Finnish/Swedish language in accordance with the objectives of the native language, Finnish/Swedish.

According to legislation (Act 630/1998, Section 12(3)), it may also be possible to teach the Romany language, sign language or some other native language as the native language, in accordance with the choice of each student. The general National Core Curriculum governing instruction in a student’s own native language is presented in Chapter 3, Section 3.1.1.5. Based on this, the education provider shall draw up applications for the languages requested separately.

Students may choose to use credits reserved for instruction in the native language (Finnish or Swedish, 4 credits) for studies in their own native language, or to study it as a foreign language (2 credits) or include it in free-choice studies.

Where credits in the native language (Finnish or Swedish) are used for instruction in a student’s own native language, the student’s studies shall, nevertheless, include studies in the Finnish/Swedish language.
STUDIES IN THE OTHER NATIONAL LANGUAGE

Instruction in the other national language (Swedish or Finnish) shall be provided for immigrant students in accordance with the objectives of the other national language, in view of the level and situation of students.

It shall be possible for foreign-language students to substitute studies in their own native language and the Finnish/Swedish language (5 credits) for those in the other national language; Chapter 3, Sections 3.1.1.5 and 3.1.1.6.

5.5 APPRENTICESHIP TRAINING

Apprenticeship training shall be governed by the provisions of the Vocational Education and Training Act (630/1998, Section 17) and of the Act on the Amendment of Section 17 of the Vocational Education and Training Act (1185/1998, Section 17).

Apprenticeship training that leads to an upper secondary vocational qualification may be provided for both young people and adults as upper secondary vocational education and training in compliance with the relevant National Core Curriculum, or in the form of apprenticeship training preparing for a competence-based qualification in accordance with the requirements of the relevant competence-based qualification.

The certificate for a qualification completed in compliance with the National Core Curriculum shall be awarded by the education provider and that for a qualification completed as a competence-based qualification shall be awarded by the relevant Qualification Committee.

5.6 CO-OPERATION BETWEEN HOME AND SCHOOL

In addition to the provisions of the Vocational Education and Training Act (630/1998, as amended by Act 479/2003), the following provisions shall be observed when organising co-operation between home and school:

In education and training intended for young people, the education provider and the educational institution shall be proactive in initiating and maintaining positive co-operation with students’ parents or guardians. Co-operation between home and school shall be organised so as to consolidate students’ independence and sense of responsibility, promote studies and make it possible for students to receive support concerning issues relating to their health, safety and well-being. Provision of support in life management and studies for students in need of special support
and those coming from different linguistic and cultural backgrounds shall be taken into account.

The section of the local curriculum concerning co-operation between home and school shall be drawn up in co-operation with the authorities dealing with implementation of municipal health care and social services in the municipality or municipalities where the educational institution is located.

5.7 STUDENT WELFARE SERVICES

Provisions governing organisation of student welfare services are laid down in the Vocational Education and Training Act (Sections 28 and 37 a, as amended by Act 479/2003).

The objective of student welfare services is to create a safe and healthy learning environment and to promote the well-being and pleasantness of the school community. The aim is to support students and maintain the functionality of the school community in situations threatening physical and psychological safety and well-being. Student welfare services shall promote early identification of and intervention in learning difficulties and other problems and prevent students from dropping out of education.

Each education provider shall promote achievement of the objectives of student welfare services by issuing guidelines within its curriculum about matters relating to the operations of the school community and about their management, such as participation of students in instruction, monitoring of progress in studies and living in student accommodation provided by the educational institution. Preventive operational guidelines shall be provided on smoking, the use of intoxicating substances, bullying and harassment. The education provider shall also have in place operational guidelines to cover behavioural problems, violence, accidents, disasters and death.

Students shall be encouraged to participate in and influence promotion of well-being within their own school community. All those working with students in the school community shall share responsibility for student welfare services. It is the task of multidisciplinary student welfare staff to co-ordinate and develop student welfare services.

Sections of the local curriculum covering student welfare services shall be drawn up in co-operation with the authorities dealing with implementation of municipal health care and social services or other bodies in the municipality or municipalities where the educational institution is located. Providers of vocational education and training shall, when drawing up the curriculum, take the obligations set out in the Primary Health Care Act (66/1972) and Child Welfare Act (683/1983)
into account when organising student welfare services in co-operation with municipal providers of health care and social services. At the same time, they shall agree on action to prevent social exclusion and organisation of student health care services and expert services in psychosocial support. Student feedback shall be utilised when developing services.

During the period of vocational education and training, students shall be informed of the objectives and methods of providing education and training, implementation of guidance and student welfare services as well as of services provided by different branches of administration, local support networks and other matters relating to studying. Information about matters relating to occupational health and safety in on-the-job learning shall be provided for parents or other guardians of underage students as well as for the students themselves.

Each education provider shall ensure that students are familiar with the rules and regulations to be observed at the educational institution. Emphasis shall be placed on each student’s own responsibility for complying with rules and other guidelines provided by the educational institution.
ELABORATION OF THE CURRICULUM

According to Section 14 of Act 630/1998, each education provider shall approve a curriculum for the education and training, which shall be based on the National Core Curriculum set out in this document. The curriculum shall be approved separately for education and training provided in the Finnish, Swedish and Sami languages and, where necessary, for education and training provided in any other language. The curriculum shall be prepared so as to enable individual options for students.

RIGHT TO RECEIVE SUFFICIENT INSTRUCTION AND GUIDANCE

The curriculum shall ensure that students have the right to receive sufficient instruction and the guidance they need, irrespective of the form in which the education and training is provided, on each operating day of the educational institution concerned. Students shall also receive sufficient guidance and support during on-the-job learning and, in particular, at its start.

The education provider shall also be responsible for the progress of students’ independent studies so that study assignments are planned, students’ work is supervised and achievement of objectives is assessed. Independent study shall be monitored and, where necessary, remedial instruction shall be provided. Contact instruction and teachers’ supervision shall play a central role at the initial stages of study. As the self-direction of students develops as their studies progress, the amount of independent study and the responsibility of students for work and study assignments shall be gradually increased, whilst the teachers focus on planning, monitoring and assessment. The scope and objectives of studies have been determined so as to require students to work 40 hours per week. The educational institution shall ensure that the objectives are achieved.
CONTENT OF THE CURRICULUM

The curriculum shall include a common part for all sectors of education and qualifications and specialised parts for each qualification. In addition to the principles and procedures common to all sectors of education, the common part shall, as far as necessary, determine the specialised parts for each sector of education.

The common part shall include:
• the key values and the development strategies for activities, as well as a plan of action related to education and training to reinforce community spirit, which provides the opportunity to consider values and become acquainted with the cultural heritage;
• the tasks set for education and training as well as the objectives and measures to accomplish them;
• provision of education and training as upper secondary education and training and in the form of competence-based qualifications;
• educational arrangements (contact, distance and multiform instruction, apprenticeship training);
• preparation of individual study plans;
• the principles governing accreditation of previous studies;
• provision of studies in co-operation with other education providers;
• provision of support services related to student counselling;
• a plan to provide on-the-job learning;
• provision of special needs education and training and related support services;
• a plan to provide education for immigrant students;
• an implementation plan for student assessment;
• an implementation plan for skills demonstrations;
• a development plan for the development of staff competence: objectives, implementation and methods to assess development;
• an implementation plan for common emphases, such as promotion of sustainable development, internationalism, utilisation of technology and information technology;
• an implementation plan for self-evaluation;
• a plan for implementation of co-operation between home and school;
• a plan for organisation of student welfare services and for promotion of safety and well-being of students and the school community.
Qualification-specific plans shall be made for
- the organisation and spacing of studies;
- the specified objectives, contents and assessment criteria of the core subjects and vocational study modules as well as progress in studies;
- the composition of study modules: study units, projects and other components of study, as well as on-the-job learning;
- the competence required to receive grades for study modules;
- the accreditation of previous studies.

Individual study plan
- In order to guarantee individual options, individual study plans shall be drawn up on the basis of the curriculum and each student’s choices.
PART II
REQUIREMENTS OF THE COMPETENCE-BASED QUALIFICATION
Part II Requirements of the Competence-Based Qualification

1

Roles and Objectives of Competence-Based Qualifications

1.1 Competence-Based Qualifications

Competence-based qualifications shall be independent of the acquisition method of vocational skills. Competence acquired in education and training, working life and interests shall be dealt with as a whole in such a way that it can be utilised in the demonstrations of vocational skills required to achieve the qualifications, i.e. competence tests.

The structure of the competence-based qualifications shall be modular. They shall consist of sets of assignments derived from working life and its development needs, the characteristics of which are the unity of the functional and theoretical basis, diversity of vocational skills as well as integration of the work process and its outcomes. Each part of the qualification shall constitute a sector of vocational competence, which can be isolated from a natural work process into an independent and assessable module. The competence tests shall be arranged and performed flexibly, one part of the qualification at a time. Instead of an entire qualification, the objective may also be completion of one or more specific parts of the qualification.

1.2 Preparatory Training for Competence-Based Qualifications

Any preconditions concerning participation in training may not be formally set for participation in competence tests. Nevertheless, the qualifications are mainly completed in connection with different forms of preparatory training.

Each provider of preparatory training shall confirm its curriculum in compliance with the requirements of the relevant competence-based qualification. The training and the competence tests included shall be divided in accordance with the parts of the qualification concerned. It is the responsibility of each training provider to arrange competence tests as part of preparatory training. Students shall be responsible for participating in the tests as part of their studies.
The core subjects included in the upper secondary vocational qualifications completed as upper secondary vocational education and training are not compulsory in training preparing for an upper secondary vocational qualification completed as a competence-based qualification. Notwithstanding, their objectives shall be taken into account in the curriculum and in provision of training, where applicable.

1.3 GENERAL GUIDELINES FOR THE DEMONSTRATION METHODS OF VOCATIONAL SKILLS AND FOR ASSESSMENT OF PERFORMANCE IN TESTS

Assessment of competence tests requires systematic collection of material, decision-making and documentation concerning the vocational and functional working capabilities of those taking the qualification in relation to the vocational skills requirements and assessment criteria determined in the requirements of the relevant competence-based qualification. Assessment shall focus on performing and functioning at work. As a general rule, specific skills or competencies shall be assessed directly on the basis of the corresponding function at work.

The competence test environment shall be as realistic and authentic as possible. Assessment shall make diverse use of different and primarily qualitative assessment methods, such as observation, interviews, surveys, previously documented competence tests, as well as self- and group assessment. Competence tests shall be arranged one part of the qualification at a time, so as to enable assessment of the achievement of the objectives central to occupational proficiency.

The targets of assessment indicate those areas of competence, which are given special attention during assessment. The targets shall be linked to core skills, command of the knowledge that forms the foundation for work, command of working methods, tools and materials as well as command of the work process. Both the targets of and the criteria for assessment shall be derived from the vocational skills requirements of the corresponding part of the qualification. The assessment criteria, based on the targets of assessment, describe and specify performances of different levels. The criteria indicate the thresholds used to separate performances of different levels.
PART II REQUIREMENTS OF THE COMPETENCE-BASED QUALIFICATION

2

COMPOSITION OF THE VOCATIONAL QUALIFICATION IN FORESTRY

2.1 PARTS OF THE QUALIFICATION

The Vocational Qualification in Forestry may be completed in the areas of competence in Forestry, Forest Machinery or Multiple Use of Forests. The qualification certificate for the Vocational Qualification in Forestry shall only be awarded upon completion of the constituent parts of the qualification as outlined below. The qualification titles for those who have completed the competence area in Forestry, Forest Machinery and Multiple Use of Forests are Forest Worker, Forest Machine Operator and Forest Ecosystem Worker respectively.

<table>
<thead>
<tr>
<th>Vocational Qualification in Forestry</th>
<th>Common compulsory parts of all competence areas</th>
<th>Compulsory parts:</th>
<th>Optional parts:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Basic forestry skills</td>
<td>4. Forestry</td>
<td>COMPETENCE AREA IN FORESTRY, Forest Worker</td>
<td>Two of the following: modules 21–28</td>
</tr>
<tr>
<td>2. Basic timber harvesting skills</td>
<td>5. Timber harvesting</td>
<td>6. Environmental protection</td>
<td></td>
</tr>
<tr>
<td>3. Basic skills in the multiple use of forests and in environmental protection</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Compulsory parts: COMPETENCE AREA IN FOREST MACHINERY, Forest Machine Operator

7. Entrepreneurship and communication
8. Machinery structures and maintenance
9. Planning of mechanised timber harvesting

Optional parts: One of the following combinations must be selected: modules 10 and 11; 12 and 13; 14 and 11; 14 and 13; or 15 and 16; and two of the following: modules 21–28

Compulsory parts: COMPETENCE AREA IN THE MULTIPLE USE OF FORESTS, Forest Ecosystem Worker

17. Knowledge of nature
18. Multiple use of forests
19. Environmental protection and nature conservation
20. Customer service

Optional parts: Two of the following: modules 21–28

Figure 1. Composition of the Vocational Qualification in Forestry. The numbering of the parts of the qualification refers to Section 2.2, Composition of Studies.
3 VOCATIONAL SKILLS REQUIRED IN THE VOCATIONAL QUALIFICATION IN FORESTRY AND THE CRITERIA FOR ASSESSMENT

3.1 VOCATIONAL SKILLS REQUIREMENTS AND ASSESSMENT

The vocational skills requirements have been set out at the excellent level for each part of the qualification in Part I, Chapter 3, Section 3.2 (Objectives, Core Contents and Assessment of Vocational Studies and On-the-job Learning). The lowest acceptable performance, i.e. competence leading to the satisfactory (S1) grade, has also been defined in the same context.
APPENDIX

PREMISES FOR ELABORATION OF THE NATIONAL CORE CURRICULUM FOR UP upper secondary vocational education and training

The curricular system of vocational education and training consists of the qualification-specific National Core Curricula, the curricula of the education providers and the individual study plans prepared on the basis of these. The underlying factors of the reforming education and training and the learning culture include conceptions of values, human beings, knowledge and learning, as well as views on the development of occupational fields, work and vocational skills.

This Appendix examines the premises for the elaboration of the National Core Curriculum: the reformed qualifications, the roles of the National Core Curriculum, the roles and value premises of vocational education and training, their conception of humanity, conceptions of knowledge and learning, as well as conceptions of work and vocational skills. In addition, this Appendix includes the basic values of the forestry sector and its description, which has formed the basis for determining the objectives of the qualification and the study programmes, composition of study modules and for setting the objectives of studies. Finally, this section discusses the preparation of individual study plans and opportunities for further study.

1 PRINCIPLES GUIDING THE ELABORATION OF THE NATIONAL CORE CURRICULUM

NEW QUALIFICATIONS

Upper secondary vocational qualifications are identical for both young people and adults, irrespective of whether these are completed in upper secondary vocational education and training in compliance with the Vocational Education and Training Act (630/1998) or as competence-based qualifications in accordance with the Vocational Adult Education and Training Act (631/1998). The vocational skills provided by these qualifications are identical irrespective of the completion method.

The role of upper secondary vocational qualifications is to provide extensive basic vocational skills for various assignments in their field and more specialised competence and vocational skills required by working life in one sector of the qualification. The Decree of the Ministry
of Education of 1st March 2001 (216/2001) determines the qualifications, the study programmes and the qualification titles. These are binding, and individual education providers may not diverge from them without permission from the Ministry of Education.

The scope of all upper secondary qualifications is three years (120 credits). One credit is equivalent to 40 hours of a student’s work, whereas one year of study covers 40 credits.

THE CONCEPT AND ROLES OF THE CURRICULUM

The National Core Curriculum is a legal norm comparable to law and education providers may not fail to comply with it on any grounds. This norm contributes to guaranteeing the achievement of the fundamental educational rights, equality, educational cohesion, quality and legal protection as well as nationally uniform vocational skills.

The role of the National Core Curriculum for vocational education and training is to convey education policy objectives and to indicate the requirements for nationally uniform vocational skills, core skills, including learning to learn, as well as for functioning as a citizen. In addition, the National Core Curriculum forms the basis of assessment.

The normative part of the National Core Curriculum determines the roles and objectives of the education and training, as well as the objectives of the qualification and the study programmes, the composition of the qualification, and the objectives, core contents and assessment of studies. In addition, the National Core Curriculum includes provisions governing student assessment, on-the-job learning, student counselling, special needs education and training, immigrant education and training, apprenticeship training, co-operation between home and school, student welfare services and the curricula of individual educational institutions.

According to the Decision (213/1999) issued by the Government on 25th February 1999, upper secondary vocational qualifications shall include 90 credits of vocational studies, of which at least 20 credits shall be provided in the form of on-the-job learning. A maximum of 10 credits of the vocational studies may be assigned to free-choice studies in the National Core Curriculum. These other optional studies included in vocational studies may be studies that consolidate or extend vocational studies, or they may be core subjects or upper secondary school studies.

The scope of the core subjects is 20 credits, whereas that of other free-choice studies is 10 credits. These may be vocational studies in one’s own field or in other fields, core subjects, studies preparing for further study or the upper secondary school matriculation examination, or interest-oriented studies. Studies include at least 1.5 credits of student counselling. This structure of studies provides, at each student’s option,
the opportunity to take up to 100 credits of vocational studies, some of which may also be from other fields. On the other hand, students may choose up to 40 credits of core subjects, which improve their capabilities for further study.

The National Board of Education has drawn up the National Core Curriculum in co-operation with interest groups. Together with representatives of economic and working life, it has first prepared a description of the occupational field, describing the operating environments of the field, its functional modules, core functions and assignments, value premises and future prospects, as well as the vocational skills required in the field. The task of education providers and educational institutions is to continue co-operation locally and regionally.

The vocational study modules have been composed on the basis of the functional modules of working life presented in the description of the occupational field. The names of the study modules describe activities in working life. The objectives of the study modules have been determined as such excellent level competence that is required for functioning in working life and for its development. The core contents have been defined in terms of core functions and tasks, which will have to be mastered in each area of operation. In addition, a satisfactory level has been determined, which means such competence that all those who have completed a qualification must at least achieve, in order to find employment. Working on the premises set out above, the educational institutions determine the educational contents and specify the assessment criteria.

The core subjects have been set out in terms of specific subjects. Their objectives have also been determined as excellent level competence supporting vocational skills, their core contents in terms of core functions and the assessment criteria as competence of the satisfactory level.

**ROLES AND VALUE PREMISES OF VOCATIONAL EDUCATION AND TRAINING**

The common objectives of vocational education and training emphasise the close connection between occupational and personal growth. In addition to vocational skills objectives, a key objective in education and training for young people in particular is the diverse development of young people’s personalities and their growth into active and responsible members of society.

The aim is that students will grow into balanced and harmonious individuals, who understand their responsibilities in interaction between people and between people and nature, and who attend to the promotion
of national culture. The key value premises include democracy and equality, appreciation of home and family, responsibility towards fellow human beings, respect for work, tolerance, as well as the national cultural heritage and internationalism.

The values can be seen and carried out in school activities. The clarification of the values guiding the operations of an educational institution and extending them into practical activities is the common task of the school community. In addition to the shared values of education, a central aspect in vocational education and training also comprises the values of occupational activities in different fields, as well as their contemplation and inclusion in instruction. Shared values and decisions on how to pursue them are part of the institutional curriculum.

CONCEPTION OF HUMANITY

The conception of humanity is the foundation for instruction and education. The premise of curricular work is that each human being is valuable and unique. Everyone has the right to life and work worthy of human dignity as well as to equal opportunities to study. The human essence includes pursuit of goodness and self-development. This conception of humanity emphasises the role of students as active participants, who are willing to learn and develop. Each student is an individual, who also wants to make individual choices in his or her study and to influence his or her own learning. However, this does not mean the requirement to manage on one’s own, but full involvement and cooperation. Individuality also means acceptance of and respect for difference, as well as consideration for the experiences and learning styles of different learners. A responsible person also takes care of other people and particularly those who cannot fully manage on their own.

CONCEPTIONS OF LEARNING AND KNOWLEDGE

The factors underlying the reform of the National Core Curricula include conceptions of knowledge and learning. Vocational competence is an integrated whole of vocational theory and practice, which is manifested in smooth action, practical skills and the ability to solve problems in work situations. Knowledge manifested in occupational activities is on many layers. It includes a theoretical foundation and practical skills built up through practice. It is also ‘tacit’ knowledge, emotions, experiences and insights, which enable people to manage different work situations in a flexible manner. Features related to competence include the ability to assess one’s own competence, the ability to solve problems independently and the ability to adopt a critical approach to information.
and to continuously learn new things through experience. Occupational
development and renewal of work practices, as well as the changing
requirements of working life, call for self-assessment and learning skills
and the will to continuously learn more, as required by the principle of
lifelong learning.

Besides permanent, timeless knowledge, there is an increasing amount
of changing knowledge. One must also be able to seek new information
by using new information technologies. As the amount of information
increases rapidly, an educational institution can only convey part of this
information. This requires careful consideration of the criteria, according
to which the study contents are selected and the essentials are sifted.

The current conception of learning emphasises the active role of
students in analysing the structure of their own skills and knowledge, as
well as in the acquisition, processing and assessment of new information.
Learning means reorganising and supplementing previous thought and
operating models. Students will have to be able to combine new
information with their own previous knowledge. Understanding develops
when students actively select information and form their own ideas on a
subject. Students shape the end result of their learning through their own
actions and are themselves responsible for their learning. In-depth
learning calls for the opportunity to process one’s learning experiences
together with experienced workers and teachers. Students, their individual
experiences and individual study styles must be taken into account in
guidance. Doing together and learning together with the aid of others is
all the more important, as it is increasingly common to work in different
kinds of teams.

Learning an occupation is closely linked to the content of work and
the operating environment. This is why studying in genuine working
environments promotes efficient learning. Learning skills requires that
students have the opportunity to be engrossed in the content of work and
occupational activities so as to be able to internalise the phases of a
work process and to learn how to work smoothly.

CONCEPTIONS OF WORK AND VOCATIONAL SKILLS

Conceptions of work and vocational skills have changed. At present,
vocational skills are understood to include extensive work and operating
modules and they are increasingly multidisciplinary in nature. In addition
to extensive competence, strong specialised competence is required.

Good vocational skills and broad general vocational learning mean
such capabilities, which enable students to manage varying assignments
in their field, to develop their vocational skills and to supplement them
on a continuous basis. General vocational learning combines strong
vocational competence with general education. It also includes value competence and internalised occupational ethics, which help to judge the justification for one’s actions in the occupation, working life and society. Good vocational skills include manual skills and the ability to apply information in practical situations. In addition to the sense of responsibility, reforms to working life also require commitment to work as well as working and functional ability. To an increasing extent, work is teamwork and doing together, which requires social skills.

In this National Core Curriculum, vocational competence is determined as being command of work and functional modules. This requires command of the common emphases, command of the core skills common to all fields, command of the knowledge that forms the foundation for work, command of working methods, tools and materials, as well as command of work processes. The requirements listed above include understanding and ethical command of the objectives and significance of work. In the National Core Curriculum, these issues are described as competence in the objectives of the qualification, study programmes and study modules. Correspondingly, the assessment criteria indicate the requirements for the level of competence.

2 DESCRIPTION AND BASIC VALUES OF THE FORESTRY SECTOR

DESCRIPTION OF THE FORESTRY SECTOR

Finland is a large and sparsely populated country. Forests are part of Finland’s identity and they have helped to keep the countryside populated, providing employment opportunities for inhabitants of sparsely populated areas. Forests have also been a source of inspiration for many artists. Forests and trees had an important meaning in Finnish pre-Christian religions and beliefs; perhaps this is one explanation for Finns’ deep relationship with forests that continues to evoke keen feelings even today.

Finland’s economy relies on forestry and the forest industry. Approximately 40% of Finland’s net export revenues come from trade in forest industry products. This share is higher than in any other country. If the value of the total net exports of the entire forest cluster is included in the figure, the percentage share exceeds 50% of Finland’s total exports.

The ‘forest cluster’ refers to a concentration of expertise made up of forestry and the forest industry, machinery and equipment manufacturing and production of chemicals for the forest industry, automation, packaging and graphics industries, energy utilities, logistics and consultancy enterprises together with associated training and research
activities. In addition to machinery and equipment for the forest industry, manufacturing of forest machinery and mechanised timber harvesting based on the shortwood method have become cornerstones of the Finnish economy.

Forestry constitutes that part of the forest cluster where the operational objective is to create sustainable welfare through diverse forests. This involves attendance to the sustainable development and use of our most important renewable natural resource. The key principles of viability and diversity of commercial forests mean guaranteeing both the advantages of wood production and other benefits offered by forests. In addition, due consideration is given to safeguarding the diversity of forests. In other words, forestry refers to activities aiming at economic, ecological and social sustainability of forests, which are placed in the area between forest regeneration and delivery of timber and other forest products to the place of use or processing.

The most important related fields among the functional fields of further processing within the forest cluster include the mechanical and chemical forest industries together with the wood-based furniture industry and construction activities. Other forest products and services are utilised in fields such as tourism and the food industry. Long-distance timber haulage forms a link between forestry and the forest industry. Other related fields include livelihoods based on other rural natural resources, such as agriculture, horticulture, peat production and ecosystem and environmental management, which are linked to the forestry sector on many biological and ecological grounds as well as through those related to rural entrepreneurship.

Typical forestry occupations include forest workers, forest machine operators and mechanics, forest improvement machine operators, tree-nursery workers, multiple use or forest ecosystem workers, timber lorry drivers, peat production machine operators, forest planners, as well as forestry engineers (Bachelors of Forestry) and foresters (Masters of Science in Forestry) who operate in supervisory positions within the sector. Entrepreneurs in the sector include those offering forest machinery or forest services, as well as those operating forest estates or producing fuel wood.

**CHANGES IN AND EFFECTS OF THE OPERATING ENVIRONMENT**

The forestry sector involves long-term operations in order to produce and harvest valuable tree crops. In recent years, this traditional sustainable use of forests has expanded to cover preservation of the diversity of forest nature as a whole. Functioning as carbon sinks and reservoirs, which play a major role in slowing down the greenhouse effect, forests
and wood products lend increasing ecological and also economic significance to the forestry sector. Along with these changes, the occupational ethics of those operating in the sector have gained new ecological, social and global foundations. The structure of forest ownership lends a strong family focus to Finland’s forestry, because the majority of forests are owned by private individuals, who more and more often live in densely populated areas, with more than 40% already living in these areas in 1999. The proportion of private forest owners other than agricultural entrepreneurs has increased from 69% to 81% over the last ten years, the largest groups consisting of wage earners and pensioners. Consequently, a considerable proportion of Finns have personal dealings with their own forests. Combined with the fact that the use of forest resources by the remaining share of the population is safeguarded by extensive public rights of access to private forests as well as to urban recreational woodlands and state-owned forests, this means that forest affairs are a personal and even a keen concern for virtually all Finns.

The average age of people working in the forestry sector is alarmingly high, among forest workers in particular. This means a challenge of taking fast and efficient action to provide young people with a truthful image of the sector and its opportunities, in order to arouse their interest in forestry as a suitable occupational field. In addition, a considerable proportion of forest owners and citizens using forests for recreational purposes are ageing people, even pensioners to a large extent; together with the thinning population base of rural areas, this gives reason to consider the priorities and orientation of the operations of qualified people working in the forestry sector. In this context, it is essential for children and young people to retain personal contact with and understanding of forests and their potential uses.

The forestry sector has been rationalised and mechanised efficiently in recent years. As a result, the number of jobs in the sector decreased considerably until quite recently, but the sector is now facing a situation where demand for forest machine operators and timber lorry drivers, in particular, has already started to increase again. Indeed, it is estimated that demand for operators and drivers will increase by 10 to 15% during the early part of the 21st century; expressed in terms of annual recruitment needs, this means just over 400 forest machine operators and more than 200 timber lorry drivers. In the midst of these changes, the focus of manpower contribution has clearly shifted from timber harvesting and the forest industry to wood production work and other areas of forestry. The objectives set out in Finland’s National Forest Programme, such as a significant increase in the use of fuel wood, together with increasing demand for silvicultural work and the aspiration to shift from part-time
to year-round contracts of employment, mean that demand for labour for manual forestry work will no longer be faced with a significant decrease. On the contrary, the relatively high average age of the workforce in the sector requires increasing recruitment over the next few years, amounting to an average of 240 employees per year. In terms of annual targets, education and training needs, derived from this demand for labour, amounts to about 1,000 entrant places, which means that job prospects for new students in the years to come are promising.

The mechanisation process of timber harvesting has already more or less reached optimum levels. Forest machinery is naturally being developed to be more economical, efficient, ergonomic and environmentally friendly and so as to take better account of its various applications. Continuous development and application of information technology plays a major role in this respect. It is reasonable to expect a leap in development of methods and technologies at least in the harvesting and use of fuel wood and possibly also in mechanisation of silvicultural work in the longer term. Forestry planning, logistics and management methods make use of information and communications technologies applied to the field, also including advanced use of mapping based on digital and space technology. In the future, simulation systems based on such technologies will play a more and more important role in in-service training for different working communities and in vocational education and training.

The objective of forest certification is to promote ecologically, economically and socially sustainable forestry. Certification is a market-driven way to promote sustainable forestry and meet customer needs. It is used in order to safeguard the competitive position of wood products in the market. Knowledge of forest certification and quality and environmental systems is essential in all assignments.

The range of forestry assignments is expanding and they require new competencies to complement traditional skills. In the future, the sector will need all-rounders who, in addition to possessing basic forestry skills, are able to serve customers in nature tourism and environmental assignments and in other supplementary assignments associated with rural livelihoods and forestry. In addition, there is a growing need for language, entrepreneurial and marketing skills.

Forestry assignments also involve a high level of networking; examples of this development include co-operation networks of forest machinery and timber lorry transport enterprises. Co-operation, subcontracting and networking are required for management of projects and other undertakings, nature-based business activities, environmental duties and for securing year-round employment by taking up industrial jobs and those available in Forest Management Associations, for example.
Internationality is a natural part of the forest cluster’s export-oriented activities. Particularly international areas of the forestry sector include export of forest machinery know-how and timber harvesting expertise and technology to Europe as well as other continents and operations in Finland’s adjacent areas in the Baltic countries and Russia and, to an increasing extent, in other parts of Europe as well. Forest service entrepreneurs can also extend their reach beyond Finnish borders, even in wood production assignments. In addition, even those working in Finland are required to be able to meet foreign people as customers, co-workers or visitors, regardless of their assignments.

DESCRIPTION OF OPERATIONS IN THE FORESTRY SECTOR

The main products of the forestry sector are roundwood products for different uses and processing purposes, as well as fuel wood and peat. Other products obtained from forests include game and a diverse range of gathering products (berries, mushrooms, herbs, etc.). In addition, the use of forests as recreational environments creates a wide variety of intangible products and services, which promote people’s psychophysical recreation, condition and health.

The key players in forestry responsible for creation of production and services in the sector include Forest Management Associations and Forestry Centres, which operate in the private forestry sector. Their services focus on forest management, planning of forestry, timber trade and manual timber harvesting. Forest machinery enterprises provide the majority of timber harvesting services, i.e. mechanised felling operations, and forest haulage, soil preparation and forest improvement services, whereas timber transport enterprises deal with long-distance timber haulage. The wood procurement organisations of forest industry enterprises handle timber purchases and deal with timber harvesting contracts with forest machinery enterprises. Metsähallitus (a state-owned enterprise previously known as the National Board of Forestry) and its field organisation are responsible for the use and management of state-owned forests and other related service activities. The Forestry Development Centre Tapio and the Forestry Centres, in turn, are responsible for promotion of private forestry. The Finnish Forest Research Institute (METLA) is the largest body in Finland to provide forest research information and promote its practical applications; other research units include Metsäteho and the TTS Institute (Work Efficiency Institute). Key labour market organisations operating in the forestry sector include the Finnish Forest Industries Federation, Private Forestry Employers’ Association and the Trade Association of Finnish Forestry and Earth Moving Contractors, representing employers, and the Wood and Allied
Workers’ Union, the Forestry Experts’ Association METO and the Society of Finnish Professional Foresters, representing employees. Promotion of private forest owners’ interests, in turn, is one of the main tasks of the Central Union of Agricultural Producers and Forest Owners (MTK). The Finnish 4H Federation functions as the sector’s youth organisation. At government level, management and co-ordination of forestry falls within the administrative branch of the Ministry of Agriculture and Forestry. Higher education in forestry is provided by the Universities of Helsinki and Joensuu and by eight polytechnics. Upper secondary vocational education and training is provided by 28 vocational institutions, which also organise vocational adult education and training and preparatory training for those wishing to take competence-based qualifications at different levels of education.

One of the objectives set out in the National Forest Programme for the next few years is to increase annual fellings of industrial roundwood to 63–68 million cubic metres per year, amounting to an annual increase of 5 to 10 million cubic metres in the use of domestic wood within the forest industry. The Programme also aims to double the value of wood industry exports to EUR 4.2 billion and to increase the use of fuel wood from 0.8 to 5 million cubic metres per year. These objectives call for a significant increase in the level of investments in silvicultural and forest improvement measures and, once achieved, will uphold employment in the forestry and forest industry sectors, which would otherwise decrease due to the growing productivity rate.

In particular, the silvicultural objectives of the Programme focus on management of young stands (150,000 to 250,000 ha/year), first thinning operations (100,000 to 250,000 ha/year) and drainage improvement (75,000 to 110,000 ha/year). In terms of forest roads, focus will shift from construction to renovation of existing roads. Monitoring of forest and environmental management and harvesting damage will be developed. In addition, multiple use of forests, including activities such as hunting, reindeer husbandry and picking of berries, mushrooms and other such products, together with landscape and cultural values and outdoor recreation and tourism, will also be taken into account and promoted in connection with the use and protection of forests.

Ecological sustainability of forests will be preserved by further developing environmental management of commercial forests in accordance with the Environmental Programme for Forestry. Appropriations for forest ecosystem management will be increased. The environmental stress caused by forestry will be reduced in accordance with the Government Resolution on Water Protection. The confirmed conservation programmes concerning privately owned land are being carried out between 1996 and 2007 under a financing programme.
specifically prepared for this purpose. Additional needs for forest protection will be examined and assessed and a forest protection programme will be prepared for Southern Finland, western parts of the Province of Oulu and South-Western Lapland to cover economic and social considerations.

Implementation of the National Forest Programme will have major economic effects, because it will increase annual exports in the forest and wood industries by EUR 1.7 to 3.4 billion by the year 2010, improve the Treasury’s balance of trade by EUR 0.8 to 1.5 billion and public finance by EUR 1.2 to 2.2 billion per year. In addition, forest owners’ income from harvesting will increase by EUR 120–250 million, while the State’s revenue from forest tax will grow by EUR 35–65 million. The higher utilisation rate in wood production will improve the profitability of forestry from EUR 97 to EUR 103–104 per hectare per year. A considerable proportion of the increasing flow of income will benefit the rural population, thus contributing to development of the countryside. The Programme will promote employment in the forest sector, amounting to 10,000–15,000 more working years in 2010 than would be available without such measures. The total effect of the Programme on the national economy will amount to 35,000–45,000 working years.

CHALLENGES TO AND COMPETENCE NEEDS IN THE FORESTRY SECTOR

The forestry sector needs to ensure sufficient availability of wood raw materials, while also enabling an increase in and development of new uses for wood. Structural changes in agriculture and forest ownership and the changing needs of the population, together with concurrent growth in tourism, will increase the significance of diversification of forest uses. Utilisation of forests to the fullest possible extent will enhance the viability of rural areas.

Forests produce broad benefits for society by providing employment. The forestry sector will have to make use of the diverse job opportunities provided by forests and ensure the availability of skilled labour. Raising the appreciation of the field will guarantee a sufficiently high-quality workforce and also encourage young people to continue to apply for education and training in forestry in the years to come.

The forestry sector has been the leading source of income for the national economy and, in particular, exports for decades. Ownership within the forest industry has concentrated on national and international groups of companies. Private forestry organisations are also centralising operations. Private individuals own about 70% of Finland’s forest
resources, while the average size of estates is becoming smaller and the
group of forest owners is becoming more and more diversified in terms
of their financial status and educational background. Attitudes towards
timber sales and environmental issues are experiencing major changes.
Nevertheless, the forestry sector needs to have prerequisites for
financially viable and competitive operations in the world market. Forest
work will have to be reorganised in a controlled manner, making use of
high-quality operating methods. Efficient timber harvesting calls for
seamless co-operation between the forest industry and forest owners. A
high standard of silviculture, in turn, requires an effective private forestry
system and diversely skilled employees and forest owners. At the same
time, entrepreneurship will increase.

In addition to tree cultivation, attention needs to focus on management of
forest environments. Forest management places more and more
emphasis on reconciliation of other uses of forests, in an economic sense as well. Ecosystem management complements and, to some extent, substitutes traditional nature conservation. Consequently, one of the
curricular premises of the Vocational Qualification in Forestry is inclusion
of competence in forest ecosystem management as part of the qualification and the objectives of its common vocational studies and those of the specialist vocational studies of each study programme.

The ability to make use of information technology and other modern
technologies is one of the continually intensifying challenges to competencies required in forestry assignments. Such ability will also provide people with capabilities to work in international assignments, as long as their language proficiency and other communication skills are adequate.

One of the key principles in elaboration of the National Core Curriculum for the Vocational Qualification and Requirements of the Competence-based Qualification in Forestry has been for all students taking the Vocational Qualification in Forestry to first obtain certain common basic vocational skills, which they will then consolidate in subsequent studies, depending on their chosen study programme and specialisation. The starting point has been to create prerequisites for educational flexibility to facilitate co-operation between different educational institutions operating in the same area, so as to provide students with the opportunity, once they have completed the majority of core subjects and common vocational studies and obtained a basis for their personal interest and aptitude, also to transfer to another institution to complete specialist studies in their chosen study programme. The basic study modules emphasise learning through working, with continuous focus on occupational safety and ergonomics.
The National Core Curriculum of the Vocational Qualification and Requirements of the Competence-based Qualification has aimed to meet the following challenges to competence in different study programmes:

**Forest Workers** must take ecological, economic and silvicultural requirements into account in their work.

The nature of work carried out in forests is changing and diversifying; forest work requires forest workers to be more and more independent and ready to use their own initiative and make independent decisions. In addition, forest workers are required to possess skills in and knowledge of entrepreneurship, marketing and customer service. Forest workers must also command teamwork and communication skills.

Forest Workers may work for forest industry enterprises, Metsähallitus, Forest Management Associations, Forestry Centres, urban and rural local authorities or private forestry and machinery entrepreneurs and as independent forestry entrepreneurs. In all assignments, it is important to possess the capabilities to work both as an employee and as an entrepreneur in forestry, timber harvesting and wood-based energy production in compliance with the principles of forestry that is sustainable in terms of ecology and environmental management.

**Forest Machine Operators** have the opportunity and, in particular with larger forest machinery enterprises, the need to specialise in different work assignments, such as operation and maintenance of timber lorries and machinery used in wood production, timber harvesting and haulage. In such cases, an operator may specialise as a skilled operator of a forestry tractor or timber production machinery or as a timber lorry driver, or as a mechanic, fitting and maintaining this type of machinery.

The occupational field requires plenty of independent competence. This involves skills in and knowledge of the use and maintenance of machinery, environmental maintenance and protection, forest management, wood production and quality management as well as communication and public relations.

**Forest Ecosystem Workers** are capable of carrying out forestry and environmental management work at special sites, where nature conservation, landscape management and other environmental management considerations need to be taken into account. They know how to plan and carry out work related to the multiple use of forests. They also know how to work in field assignments in forest and environmental research as well as game management and forestry research. Their operating environments include special sites in municipal urban woodlands, outdoor exercise and recreation areas and nature tourism sites.
3 PREPARATION OF INDIVIDUAL STUDY PLANS

Individual study plans are produced on the basis of the curriculum and the choices of individual students. They are the development plans of the students, which support career planning and self-assessment. Individual study plans are based on the individual needs of students; students participate in planning their own studies, personal choices, individual progress in their studies and in the assessment of their own learning. Each student co-operates with teaching staff to draw up a plan stemming from the curricular objectives and the student’s own objectives, which takes account of the student’s background and objectives, and the student commits and motivates him- or herself to its implementation. Drawing up an individual study plan is thus comparable to a joint problem-solving process based on diverse interaction between the student and the teacher.

Individual study plans define the objectives of learning, completion of studies, methods and timing of their completion, as well as assessment of studies. When preparing a plan, any skills complying with the objectives of the National Core Curriculum, such as previous studies and work experience, will be fully taken into account, and these will be accredited in the studies. Where necessary, the up-to-dateness of competence will be assessed through various appropriate methods. Each individual study plan also includes an on-the-job learning plan, which determines the objectives, learning assignments, duration and timing of each period of on-the-job learning, as well as the procedures of student assessment.

The implementation and monitoring of individual study plans are continuously supported through student counselling. In private discussions between a student and a teacher, the student has the opportunity to openly and confidentially discuss all issues and problems related to studies. However, this information is not recorded on the individual study plan.

The implementation of individual study plans is monitored during the education and training. Students and all teachers may bring up issues that have a bearing on the implementation of individual study plans, and each student is guided to make decisions concerning his or her own learning. Where necessary, the plan is modified in the course of the studies, since on-the-job learning, for example, may make it possible to complete the qualification in a new way.

Where the objectives of studies have been adjusted in accordance with Section 20 or 21 of Act 630, the individual study plan of such students is drawn up in compliance with the adjusted objectives and assessment criteria.
4 OPPORTUNITIES FOR FURTHER STUDY

Natural further education tracks for those who have completed the Vocational Qualification in Forestry include polytechnic studies in the natural resources sector, in particular programmes leading to the Bachelor of Forestry degree (160 credits), and university studies in forestry, as well as further and specialist vocational qualifications in the natural resources sector.

Those who have completed an upper secondary vocational qualification with a scope of three years fall within the general eligibility for further study, which means that they are eligible to apply to polytechnics and universities (Vocational Education and Training Act 630/1998, Vocational Education and Training Decree 811/1998, Universities Decree 115/1998, Polytechnics Act 351/2003, Regulation 18/011/98 of the Ministry of Education of 30th December 1998 on Eligibility for Polytechnic Studies).

Those who have completed an upper secondary vocational qualification in the form of a competence-based qualification fall within general eligibility for polytechnic education. By virtue of the Universities Decree, universities may, if they so desire, deem that an upper secondary vocational qualification completed as a competence-based qualification may also provide the sufficient skills and knowledge for study and, subsequently, eligibility for university studies (Letter of the Ministry of Education, dated 11th May 1999, Reg. No. 21/500/99).

At polytechnics, students may complete a polytechnic degree in the fields of natural resources and the environment; technology, communications and transport; social sciences, business and administration; tourism, catering and domestic services; social services, health and sports; culture; natural sciences; humanities and education; as well as other education. The scope of education varies from 140 credits to 180 credits. However, the most common scope of education is 160 credits. The qualification titles vary by sector.

At universities, students may complete a lower academic (Bachelor’s) degree with a scope of 120 credits or a higher academic (Master’s) degree with a scope of 160 credits.