

CHALMERS

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Regulation for the Local Qualifications Framework for First and Second Cycle Qualifications

Policy Document at Chalmers University of Technology

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1. Introduction

The Local Qualifications Framework for first and second cycle qualifications is based on the Act (1993:792) concerning authority to award certain qualifications in the first and second cycles, with effect from 1 July 2007. The Act (1993:792) concerning authority to award certain qualifications states that the education shall follow requirements of education stipulated in Chapter 1 of the Swedish Higher Education Act (1992:1434) and in the National Qualifications Ordinance, Annex 2 of the Higher Education Ordinance (1993:100). Beyond qualifications listed in Annex 2 there are also additional provisions in the following ordinances that must be fulfilled for secondary teaching qualifications at first and second level; Ordinance on supplementary teacher education (2011:686) leading to secondary teaching qualifications, as well as Ordinance on education for qualification as a teacher/pre-school teacher (2021:1335) leading to secondary teaching qualifications. The qualification descriptors above are presented in this local qualification framework per qualification together with the complimentary local degree requirements (qualifications descriptors) which have been decided by Chalmers University of Technology.

On 28 June 2007, the Government decided that with effect from 1 July 2007 Chalmers University of Technology AB ("Chalmers") will be entitled to award the qualifications specified in this local qualifications framework (Government decisions U2006/9375/UH, U2007/4718/UH).

On 10 February 2011, the Government decided that Chalmers will be entitled to award the Degree of Master of Science in Secondary Education with a specialisation in teaching in the upper secondary school in the subjects of mathematics, chemistry and physics and engineering (Government decision U2010/4017/UH).

On 2 October 2011, the Government decided that Chalmers will be entitled to award the Degree of Bachelor of Science in Secondary Education with a specialisation in teaching in the upper secondary school in the subjects of mathematics, chemistry and physics and engineering, after completion of Supplementary Teacher Education (Government decision U2010/4017/UH).

The Local Qualifications Framework for first and second cycle qualifications is also based on decisions pertaining to the following local degree requirements (qualifications descriptors) at Chalmers University of Technology. These decisions are included in the local Qualifications Framework in effect at the current time.

- Five compulsory credits (7.5 credits) in Environment and Sustainable Development in all Bachelor of Science in Engineering programmes, ref. no. C 2006/1040
- Five compulsory credits (7.5 credits) in Environment and Sustainable Development in all Master of Science in Engineering and Master of Architecture programmes, ref. no. Dnr C 01/00216
- Compulsory course in Environment and Sustainable Development, ref. no. C 2005/1350
- Content of humanities and social sciences in Civil Engineering and Architect programmes at Chalmers, i.e., five compulsory credits (7.5 credits) MTS (Humans, Technology, Society) ref. no. C 889-02
- Clarification of Chalmers local qualifications descriptors for MHU (Environment and Sustainable Development) and MTS (Humans, Technology, Society), ref. no. C 2015-1325
- Clarification of transitional provisions for students admitted before 1 July 2007 under the previous ordinance, ref. no. C 2016-0304. Supersedes decision, ref. no. C 2006/1210
- Clarification of transitional provisions for students admitted to the international master programs before 1 July 2007 under the previous ordinance, ref. no. C 2016-1825

- Clarification of Chalmers local graduation requirements for projects within major subject Architecture or Architectural engineering, 150 cr. ref. no C 2020-0887

The official language of communication at Chalmers is Swedish and this English version of the approved policy document is merely a translation. In the event of differences between the qualification's framework in Swedish and the translation in English, the approved qualifications framework in Swedish shall take precedence.

Revision compilation, approved on 12 June 2023

New sections and additions:

- Chapter 5 and 6 has been combining to one chapter
- Revised chapter 8 (now 7): Local degree requirements for Environment and Sustainable Development (MHU) and Humans, Technology, Society (MTS)
- Revises qualification descriptors concerning Degree of Master of Science in Secondary Education with a specialisation in teaching in the upper secondary school according to Ordinance on supplementary teacher education (2011:686) leading to secondary teaching qualifications and Ordinance on education for qualification as a teacher/pre-school teacher (2021:1335) leading to secondary teaching qualifications
- Overall clarification of local qualifications descriptors

2. First and second cycle qualifications awarded by Chalmers as well as their main fields of study and specialisations

First cycle general qualifications

Higher Education Diploma
Degree of Bachelor of Science

Second cycle general qualifications

Degree of Master of Science (60 credits)
Degree of Master of Science (120 credits)

First cycle professional qualifications

Degree of Bachelor of Science in Engineering
Degree of Bachelor of Science in Marine Engineering
Degree of Bachelor of Science in Nautical Science
Degree of Bachelor of Science in Secondary Education with a specialisation in teaching in the upper secondary school

Second cycle professional qualifications

Degree of Master of Architecture
Degree of Master of Science in Engineering
Degree of Master of Science in Secondary Education with a specialisation in teaching in the upper secondary school

Main fields of study for general qualifications at first and second cycle level

Huvudområde

Main field of study

Arkitektur	Architecture
Arkitektur och teknik	Architecture and Engineering
Automation och mekatronik	Automation and Mechatronics Engineering
Bioteknik	Bioengineering
Datateknik	Computer Science and Engineering
Elektroteknik	Electrical Engineering
Energi- och miljöteknologi	Energy and Environmental Systems and Technology
Globala system	Global Systems Engineering
Industriell ekonomi	Industrial Engineering and Management
Informationsteknik	Software Engineering
Kemiteknik	Chemical Engineering
Kemiteknik med fysik	Chemical Engineering with Engineering Physics
Maskinteknik	Mechanical Engineering
Matematik	Mathematics
Medicinteknik	Biomedical Engineering
Samhällsbyggnadsteknik	Civil and Environmental Engineering
Sjöfartsteknik	Shipping and Marine Technology
Teknisk design	Industrial Design Engineering
Teknisk fysik	Engineering Physics
Teknik och lärande	Technology and Learning

Specialisations for professional qualifications at first cycle level

<i>Inriktning</i>	<i>Specialisation</i>
Byggteknik	Building and Civil Engineering
Datateknik	Computer Engineering
Design och produktutveckling	Product Design Engineering
Ekonomi och produktionsteknik	Industrial Management and Production Engineering
Elektroteknik	Electrical Engineering
Kemiteknik	Chemical Engineering
Maskinteknik	Mechanical Engineering
Mekatronik	Mechatronics Engineering
Samhällsbyggnadsteknik	Civil and Environmental Engineering

Specialisations for professional qualifications at second cycle level

<i>Inriktning</i>	<i>Specialisation</i>
Arkitektur	Architecture
Arkitektur och teknik	Architecture and Engineering
Automation och mekatronik	Automation and Mechatronics Engineering
Bioteknik	Bioengineering
Datateknik	Computer Science and Engineering
Elektroteknik	Electrical Engineering
Globala system	Global Systems Engineering
Industriell ekonomi	Industrial Engineering and Management
Informationsteknik	Software Engineering
Kemiteknik	Chemical Engineering
Kemiteknik med fysik	Chemical Engineering with Engineering Physics
Maskinteknik	Mechanical Engineering
Medicinteknik	Biomedical Engineering
Samhällsbyggnadsteknik	Civil Engineering
Teknisk design	Industrial Design Engineering
Teknisk fysik	Engineering Physics

Teknisk matematik
Väg och vattenbyggnad

Engineering Mathematics
Civil Engineering

Teaching subjects for qualifications in secondary education with a specialisation in teaching in the upper secondary school

Fysik	Physics
Kemi	Chemistry
Matematik	Mathematics
Teknik	Technology

3. Degree certificate

Students who satisfy the requirements for a first and second cycle qualification are entitled to a degree certificate upon application. The date of issuance and the date when the qualification requirements were satisfied are stated on the degree certificate. Degree certificates are bilingual and issued in Swedish and English. Credited courses in the degree certificate can be stated in other languages than Swedish and English.

Since 1 January 2004, all degree certificates issued by Chalmers are accompanied by a Diploma Supplement for first and second cycle qualifications. Diploma Supplements describe the programme and where it fits into the Swedish educational system. Diploma Supplements are intended to facilitate recognition and transfer of a Swedish qualification to make it easier for those with academic qualifications to study or work in other countries.

The degree certificate is a valuable document and is issued only in one original. Only a person who has been granted protected identity or has changed his or her legal gender identity and proves this with an affidavit from the Swedish Tax Agency verifying the change is entitled to receive a new degree certificate for a previously awarded qualification.

4. Grades and scope of education

Courses included in the qualification must be completed with a final grade. A completed course refers to a course for which the student has taken a final examination with a minimum grade of Three or Pass. The grade is given by an examiner appointed by the University. The grade scale is Pass or Three, Four, Five, where Five is the highest grade. In the degree certificate the grading scale is presented as Pass (3), Pass with credit (4) or Pass with Distinction (5), where Pass with Distinction is the highest grade. Grades lower than Three correspond to a Fail grade. No overall grade is given for the qualification earned. Target-related grading scales are used in Sweden, which means that students are not ranked.

The scope of the course or programme is indicated in credits. Sixty credits correspond to one academic year of full-time study.

5. Prerequisite courses and overlapping content that cannot be included in the qualification

Courses included in an earned Bachelor's degree or professional qualification of at least 180 credits or the equivalent qualification that are prerequisites for master's qualifications may not be included in the higher qualification. The courses that fulfil the specific entry requirements or are included in

other admission regulations may not be included in the same qualification.

Courses whose content partially or entirely overlaps with one or several courses may not be simultaneously included within the framework of a single qualification.

6. Credit transfer

Credits can be transferred for an entire course or part of a course. Courses included in an earned Bachelor's degree or professional qualification of at least 180 credits or the equivalent qualification that are prerequisites for master's qualifications may not be included in the higher qualification. This also applies to the courses that fulfil the specific entry requirements or are included in other admission regulations, concerning the education programme in question.

7. Local degree requirements for Environment and Sustainable Development (MHU) and Humans, Technology, Society (MTS)

Chalmers' local degree requirement within the field of Environment and Sustainable Development (MHU) refers to 7.5 completed credits in all professional qualifications at first cycle and second cycle level. For the Degree of Master of Science in Engineering there is also a degree requirement of 7.5 credits completed within the field of Humans, Technology, Society (MTS).

The following shall apply for courses to satisfy Chalmers' local degree requirements for MHU and MTS: Credits within the field of Environment and Sustainable Development (MHU) and Humans, Technology, Society (MTS) shall be taught in the courses, which means there must be learning outcomes that are directly connected to MHU and MTS and which are tested in examinations.

"Directly connected to MHU and MTS" means that the content must contribute directly to fulfilling relevant and chosen parts of learning outcomes stated in the National Qualifications Ordinance, Annex 2 of the Higher Education Ordinance (1993:100), which are described in the decision "Clarification of Chalmers local graduation requirements for MTS (Humans, Technology, Society) and MHU (Environment and Sustainable Development) courses" ref- no. 2015-1325. The decision also describes that a course can contribute to cover parts of the selected learning outcomes in the National Qualifications Ordinance, Annex 2 of the Higher Education Ordinance (1993:100). However, the programme in its entirety must fulfil all aspects of the learning outcomes.

8. Two or more qualifications awarded at Chalmers

Students who satisfy the requirements for different degrees at Chalmers in which some or all of the same courses are included can be awarded two or more qualifications.

Two or more Degrees of Master of Science in Engineering at Chalmers can be awarded only if all degree requirements for each programme have been satisfied and separate degree projects have been completed. In addition to the degree project, the courses included must differ by at least 60 credits, of which at least 30 credits at the second cycle level.

Two or more Degrees of Master of Architecture at Chalmers can be awarded only if all degree requirements for each programme have been satisfied and separate degree projects have been completed. In addition to the degree project, the courses included must differ by at least 60 credits, of which at least 30 credits at the second cycle level.

Two or more Degrees of Bachelor of Science in Engineering at Chalmers can be awarded only if all degree requirements for each programme have been satisfied and separate degree projects have been completed. In addition to the degree project, the courses included must differ by at least 45 credits.

Two or more Degrees of Master of Science (120 credits) at Chalmers in the same or different main field of study can be awarded only if all degree requirements are satisfied and separate degree projects have been completed. In addition to the degree project, the courses included must differ by at least 30 credits.

Two or more Degrees of Master of Science (60 credits) at Chalmers in the same or different main field of study can be awarded only if all degree requirements are satisfied and separate degree projects have been completed. In addition to the degree project, the courses included must differ by at least 15 credits. This requirement is satisfied if the degree project is for 30 credits.

Two or more Degrees of Bachelor of Science at Chalmers in the same or different main field of study can be awarded only if all degree requirements are satisfied and separate degree projects have been completed. In addition to the degree project, the courses included must differ by at least 45 credits.

Two or more Higher Education Diplomas at Chalmers in the same or different main field of study can be awarded only if all degree requirements are satisfied and separate degree projects have been completed. In addition to the degree project, the courses included must differ by at least 30 credits.

9. Collaborative degrees

Chalmers and certain external higher education institutions are parties to collaborative agreements whose programme syllabus leads to either a dual second cycle qualification (Double Degree) or a joint second cycle qualification (Joint Degree). These collaborative agreements take precedence over the local qualifications in the framework.

9.1. Double Degree

Students who are studying under a collaborative agreement whose programme syllabus leads to a double degree (second cycle/Degree of Master, 120 credits) study 60 credits at Chalmers and 60 credits at the partner institution. After two years of approved studies under the agreement, the student has the right to apply for two separate Degrees of Master (120 credits, second cycle qualifications), one from Chalmers and one from the partner institution, with the same courses included. Credits for courses studied at the partner university can, after evaluation, be transferred by the Office of Admissions and Degrees.

9.2. Joint Degree

Students who are studying under a collaborative agreement whose programme syllabus leads to a joint degree generally study 60 credits at Chalmers and 60 credits at the partner institution. After a total of two years of approved study under the agreement, the student can apply for a joint degree (second cycle/Degree of Master, 120 credits). In this case, the degree certificate is formulated jointly by Chalmers and the partner institution. The degree certificate is issued by the coordinating partner institution.

10. Transitional provisions

10.1. National transitional provisions

National transitional provisions corresponding to the Higher Education Ordinance (1993:100) apply at Chalmers regarding the sections below.

Ordinance 2006:1053

1. This ordinance enters into effect [-] on 1 January 2007.
5. A person who has started an educational programme leading to a qualification under the older provisions in the National Qualifications Ordinance, Annex 2 of the Higher Education Ordinance (1993:100) before 1 July 2007 and a person who has been admitted to such a programme before that date but was granted deferment until a time after that date is entitled to complete her or his education and obtain a qualification under the older provisions before the end of June 2015.
6. One credit defining the scope of first, second, or third cycle education before 1 July 2007 is equivalent to one and a half credits under the new provisions.
9. If prior education or a first cycle qualification is required for a second cycle qualification awarded under the new provisions, a person who has corresponding education or a corresponding first cycle qualification will also satisfy the requirements for the qualification.
12. A person who has been admitted to a first cycle programme and has been granted deferment of commencement of studies until after 1 July 2007 will be deemed to have been admitted to the programme under the new provisions. However, this does not apply if the person admitted has chosen to exercise his or her rights under point 5.

Ordinance 2017:893

1. This ordinance comes into effect on 2 July 2018.^[1]
2. Persons who have started a Degree of Master of Arts/Science in Secondary Education or a Degree of Master of Arts/Science in Upper Secondary Education before 2 July 2018 and persons who have previously been admitted to such a programme but have received a respite until a time after this for which to start the programme, are entitled to complete the programme to receive a qualification according to the older provisions, however this is only applicable until the end of December 2024.

Ordinance 2020:766

1. This ordinance enters into effect on 1 January 2021.
2. This ordinance is first applied to the issue of education and qualifications in Pre-School Education, Vocational Education, Primary Education and Secondary/Upper Secondary Education that are awarded after the end of June 2021.
3. Older provisions still apply to education and qualifications in Pre-School Education, Vocational Education, Primary Education and Secondary/Upper Secondary Education that are awarded prior to 1 July 2021.
4. The older provisions still apply to qualifications in Pre-School Education, Vocational Education, Primary Education and Secondary/Upper Secondary Education awarded after the end of June 2021 if the programme covered by the degree certificate was completed in its entirety before this date.
5. A person who started a programme for a qualification in Pre-School Education, Vocational Education, Primary Education or Secondary/Upper Secondary Education prior to 1 July 2021 under the older provisions is entitled to complete their programme and be awarded such a qualification under the older provisions until the end of June 2025 for the Higher Education Diploma in Vocational Education and until the end of June 2029 for degrees in Pre-School Education, Primary Education and Secondary/Upper Secondary Education.

10.2. Local transitional provisions

Local transitional provisions apply at Chalmers as set forth below.

1. A person who commenced his or her education before 1 July 2007 and wishes to complete the education after 30 June 2015 must satisfy the requirements under the National Qualifications Ordinance, Annex 2 of the Higher Education Ordinance (1993:100) and the local Qualifications Framework in effect at the current time.
2. Students, admitted before 1 July 2007 under the earlier Ordinance (1993:956) in regards of permission to issue certain qualifications to one of the international master's programmes (90 credits), are given the possibility to complete their studies under the National Qualifications Ordinance, Annex 2 of the Higher Education Ordinance (1993:100) and the local Qualifications Framework in effect at the current time. These students are offered an individual study plan to be able to fulfil the requirements for one of the existing master's programmes (120 credits). The opportunity for completion normally applies to a degree within the master's programme where the need for completion is the lowest. Thus, the prior award of a Degree of Bachelor, a professional qualification of 180 credits or a corresponding qualification is required, see section 14.2.
3. Students, admitted before 1 July 2007 under the earlier Ordinance (1993:956), in regards of permission to issue certain qualifications to the Master of Science in Engineering or the Master of Architecture programme (270 credits), who have satisfied the MTS/MHU requirements then in effect shall be deemed to have also satisfied current MTS/MHU requirements. Students who have satisfied only part of the earlier MTS/MHU requirements must satisfy the current MTS/MHU requirements in their entirety.
4. Students, admitted before 1 July 2007 under the earlier Ordinance (1993:956) in regards of permission to issue certain qualifications to the Master of Science in Engineering or the Master of Architecture programme (270 credits) who now study according to an individual study plan whose objective is to earn a Master of Science in Engineering or Master of Architecture (300 credits) according to the National Qualifications Ordinance, Annex 2 of the Higher Education Ordinance (1993:100) and the local Qualifications Framework in effect at the current time are granted a general waiver for a first cycle independent project (degree project). Thus, the requirement for a first cycle independent project within the Degree of Master of Science in Engineering or the Degree of Master of Architecture (300 credits) does not apply to this group of students. This applies regardless of which course packaging instance the student follows.
5. Students, admitted before 1 July 2007 under the earlier Ordinance (1993:956) in regards of permission to issue certain qualifications, are granted a general waiver from the requirement of a Degree of Bachelor to satisfy the requirements for the Degree of Master. The waiver is granted because the students who studied according to the earlier ordinance were admitted to a long degree programme that does not provide opportunities for intermediate qualifications/degrees.

The waiver is granted provided that:

- the student has followed a course packaging instance for the Degree of Master of Science in Engineering or Degree of Master of Architecture programme (270 credits) (substitution of courses in the programme syllabus is permitted),
- the student satisfies the requirements for the Degree of Master of Science in Engineering or Degree of Master of Architecture (300 credits) according to the requirements under the National Qualifications Ordinance, Annex 2 of the Higher Education Ordinance (1993:100) and the local Qualifications Framework in effect at the current time,
- the student satisfies the requirements for the relevant second cycle programme. The student need not be admitted to the second cycle programme to satisfy the qualification requirements for the same.

Students admitted under the earlier Ordinance mentioned above and who thereafter changed course packaging instance and are following the programme syllabus under the National Qualifications Ordinance, Annex 2 of the Higher Education Ordinance (1993:100) and the local Qualifications Framework in effect at the current time, are not covered by the above waiver from satisfying the requirements for the second cycle qualification. An exception can be granted if it is to the student's advantage. For such an exception to be granted, the individual study plan and associated decisions must be signed by the director of studies and the director of the relevant second cycle programme (engineering or architecture).

11. Appeal

A decision to reject a student's request for a degree certificate or course certificate may be appealed against as set forth in Chalmers' Rules of Procedure - First and Second Cycle Education. The appeal shall be in writing and reach the registrar within three weeks of the date the decision was notified.

12. Qualification descriptors for first cycle general qualifications

12.1. Higher Education Diploma

Scope

A Higher Education Diploma is awarded after the student has completed the courses required to gain 120 credits with a defined specialisation.

Learning outcomes

Knowledge and understanding

For a Higher Education Diploma, the student shall

– demonstrate knowledge and understanding in the principal field (main field of study) of the study programme, including awareness of the disciplinary foundation of the field and knowledge of some applicable methodologies in the field.

Competence and skills

For a Higher Education Diploma, the student shall

– demonstrate the ability to search for, gather and critically interpret the relevant information in order to formulate answers to well defined issues in the main field of study,
 – demonstrate the ability to present and discuss his or her knowledge with different audiences, and
 – demonstrate the skills required to work autonomously with specific tasks in the main field of study.

Judgement and approach

For a Higher Education Diploma, the student shall

– demonstrate knowledge about and be equipped to deal with ethical issues in the main field of study.

Independent project (degree project)

A requirement for the award of a Higher Education Diploma is completion by the student of an independent project (degree project) in the main field of study.

Local degree requirements

To be awarded a Higher Education Diploma at Chalmers, the student shall together with the above mentioned requirements, also fulfil the local degree requirements below:

- Have completed the course requirements of at least 40 credits for which final examinations were taken at Chalmers. The degree project can be included in these 40 credits.

- Have completed at least 60 credits in the programme's main field of study, including at least 7.5 credits for the degree project.

Title of qualification

The title of the qualification is Högskoleexamen. The English translation of the title of the qualification is the Higher Education Diploma. The degree certificate states the main field of study covered by the qualification.

12.2. Degree of Bachelor

Scope

A Degree of Bachelor is awarded after the student has completed the courses required to gain 180 credits in a defined specialisation, of which 90 credits are for progressively specialised study in the programme's main field of study.

Learning outcomes

Knowledge and understanding

For a Degree of Bachelor, the student shall

- demonstrate knowledge and understanding in the main field of study, including knowledge of the disciplinary foundation of the field, knowledge of applicable methodologies in the field, specialised study in some aspect of the field as well as awareness of current research issues.

Competence and skills

For a Degree of Bachelor, the student shall

- demonstrate the ability to search for, gather, evaluate and critically interpret the relevant information for a formulated problem and also discuss phenomena, issues and situations critically,
- demonstrate the ability to identify, formulate and solve problems autonomously and to complete tasks within predetermined time frames,
- demonstrate the ability to present and discuss information, problems and solutions in speech and writing and in dialogue with different audiences, and
- demonstrate the skills required to work autonomously in the main field of study.

Judgement and approach

For a Degree of Bachelor, the student shall

- demonstrate the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues,
- demonstrate insight into the role of knowledge in society and the responsibility of the individual for how it is used, and
- demonstrate the ability to identify the need for further knowledge and ongoing learning.

Independent project (degree project)

A requirement for the award of a Degree of Bachelor is completion by the student of an independent project (degree project) for at least 15 credits in the main field of study.

Local degree requirements

To be awarded a Degree of Bachelor at Chalmers the student shall, together with the above mentioned requirements, also fulfil the local degree requirements below:

- Have completed the course requirements of at least 60 credits for which final examinations were taken at Chalmers. The degree project can be included in these 60 credits.

A completed Bachelor's programme can be included as a part of the Degree of Master of Science in Engineering (300 credits) or a Degree of Master of Architecture (300 credits). In these cases, the programme-specific outcomes and the compulsory elements of the programme syllabus must be satisfied.

Title of qualification

The title of the qualification is Teknologie kandidatexamen. The English translation of the title of the qualification is Degree of Bachelor of Science. The degree certificate states the main field of study covered by the qualification.

13. Qualification descriptors for second cycle general qualifications

13.1. Degree of Master (60 credits)

Scope

A Degree of Master (60 credits) is awarded after the student has completed the courses required to gain 60 credits with a defined specialisation, of which at least 30 credits are for specialised study in the programme's main field of study. In addition, the prior award of a Degree of Bachelor, a professional qualification of at least 180 credits or a corresponding qualification is required.

The requirement of the prior award of a Degree of Bachelor, a professional qualification of at least 180 credits or a corresponding qualification may be waived for a student admitted to second cycle without the basic entry requirement in the form of a qualification because of studies on an on-going longer degree programme without an intermediate bachelor's degree (kandidatexamen). In these cases, when applying for a master's degree, the student shall submit a certificate proving which courses of at least 180 credits that correspond to the level of the first three years on first cycle level.

Learning outcomes

Knowledge and understanding

For a Degree of Master (60 credits), the student shall

- demonstrate knowledge and understanding in the main field of study, including both an overview of the field and specialised knowledge in certain areas of the field as well as insight into current research and development work, and
- demonstrate specialised methodological knowledge in the main field of study.

Competence and skills

For a Degree of Master (60 credits), the student shall

- demonstrate the ability to integrate knowledge and analyse, assess and deal with complex phenomena, issues and situations even with limited information,
- demonstrate the ability to identify and formulate issues autonomously as well as to plan and, using appropriate methods, undertake advanced tasks within predetermined time frames,
- demonstrate the ability in speech and writing to report clearly and discuss his or her conclusions and the knowledge and arguments on which they are based in dialogue with different audiences, and
- demonstrate the skills required for participation in research and development work or employment in some other qualified capacity.

Judgement and approach

For a Degree of Master (60 credits), the student shall

- demonstrate the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues and also to demonstrate awareness of ethical aspects of research and development work,

- demonstrate insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used, and
- demonstrate the ability to identify the personal need for further knowledge and take responsibility for his or her ongoing learning

Independent project (degree project)

A requirement for the award of a Degree of Master (60 credits) is completion by the student of an independent project (degree project) for at least 15 credits at second cycle level in the main field of study.

Local degree requirements

To be awarded a Degree of Master (60 credits) at Chalmers, the student shall together with the above mentioned requirements, also fulfil the local degree requirements below:

- Have completed the course requirements of at least 45 credits at the second cycle level. The degree project can be included in these 45 credits.
- Have completed the course requirements of at least 30 credits at the second cycle level for which final examinations were taken at Chalmers. The degree project can be included in these 30 credits.

Title of qualification

The title of the qualification is Teknologie magisterexamen. The English translation of the title of the qualification is Degree of Master of Science (60 credits). The degree certificate states the main field of study covered by the qualification.

13.2. Degree of Master (120 credits)

Scope

A Degree of Master (120 credits) is awarded after the student has completed the courses required to gain 120 credits with a defined specialisation, of which at least 60 credits are for specialised study in the programme's main field of study. In addition, the prior award of a Degree of Bachelor, a professional qualification of at least 180 credits or a corresponding qualification is required.

The requirement of the prior award of a Degree of Bachelor, a professional qualification of at least 180 credits or a corresponding qualification may be waived for a student admitted to second cycle without the basic entry requirement in the form of a qualification because of studies on an on-going longer degree programme without an intermediate bachelor's degree (kandidatexamen). In these cases, when applying for a master's degree, the student shall submit a certificate proving which courses of at least 180 credits that correspond to the level of the first three years on first cycle level.

Learning outcomes

Knowledge and understanding

For a Degree of Master (120 credits), the student shall

- demonstrate knowledge and understanding in the main field of study, including both broad knowledge of the field and a considerable degree of specialised knowledge in certain areas of the field as well as insight into current research and development work, and
- demonstrate specialised methodological knowledge in the main field of study.

Competence and skills

For a Degree of Master (120 credits), the student shall

- demonstrate the ability to critically and systematically integrate knowledge and analyse, assess and deal with complex phenomena, issues and situations even with limited information,
- demonstrate the ability to identify and formulate issues critically, autonomously, and creatively as well as to plan and, using appropriate methods, undertake advanced tasks within predetermined

time frames and so contribute to the formation of knowledge as well as the ability to evaluate this work,

- demonstrate the ability in speech and writing both nationally and internationally to clearly report and discuss his or her conclusions and the knowledge and arguments on which they are based in dialogue with different audiences, and
- demonstrate the skills required for participation in research and development work or autonomous employment in some other qualified capacity.

Judgement and approach

For a Degree of Master (120 credits), the student shall

- demonstrate the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues and also to demonstrate awareness of ethical aspects of research and development work,
- demonstrate insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used, and
- demonstrate the ability to identify the personal need for further knowledge and take responsibility for his or her ongoing learning

Independent project (degree project)

A requirement for the award of a Degree of Master (120 credits) is completion by the student of an independent project (degree project) for at least 30 credits at second cycle level in the main field of study. The degree project may comprise less than 30 credits, however no less than 15 credits, if the student has already completed an independent project in the second cycle for at least 15 credits in the main field of study or the equivalent from a programme of study outside Sweden.

Local degree requirements

To be awarded a Degree of Master (120 credits) at Chalmers, the student shall together with the above mentioned requirements, also fulfil the local degree requirements below:

- Have completed the course requirements of at least 90 credits at the second cycle level. The degree project can be included in these 90 credits.
- Have completed the course requirements of at least 45 credits at the second cycle level for which final examinations were taken at Chalmers. The degree project can be included in these 45 credits.

To obtain a Degree of Master (120 credits) with the name of the master's programme the required courses and the outcomes stated in the respective programme-specific outcomes and the compulsory elements of the programme syllabus must be satisfied.

To obtain a double Degree of Master (120 credits) according to a collaborative agreement with a partner institution the programme-specific outcomes and the compulsory elements of the programme syllabus stated in the collaborative agreement must be satisfied.

A completed Master's programme, or an agreement for double master's degree, can be included as a part of the Degree of Master of Science in Engineering (300 credit), Master of Architecture (300 credit), Master of Science in Secondary Education with a specialisation in teaching in the upper secondary school (300 credit). In these cases, the programme-specific outcomes and the compulsory elements of the programme syllabus must be satisfied.

Title of qualification

The title of the qualification is Teknologie masterexamen. The English translation of the title of the qualification is Degree of Master of Science (120 credits). The degree certificate states the main field of study covered by the qualification and the name of the master programme, that the student has completed. If the student has completed a double degree agreement the degree certificate states

the main field of study covered by the qualification, and the name of the program agreement.

14. Qualification descriptors for first cycle professional qualifications

14.1. Degree of Bachelor of Science in Engineering

Scope

A Degree of Bachelor of Science in Engineering is awarded after the student has completed the courses required to gain 180 credits.

Learning outcomes

For a Degree of Bachelor of Science in Engineering the student shall demonstrate the knowledge and skills required to work autonomously as a graduate engineer.

Knowledge and understanding

For a Degree of Bachelor of Science in Engineering, the student shall

- demonstrate knowledge of the disciplinary foundation of the engineering field chosen and proven experience in this field as well as awareness of current research and development work, and
- demonstrate broad knowledge in the engineering field chosen and relevant knowledge of mathematics and the natural sciences.

Competence and skills

For a Degree of Bachelor of Science in Engineering, the student shall

- demonstrate the ability to identify, formulate and deal with issues autonomously and creatively using a holistic approach and to analyse and evaluate technological solutions,
- demonstrate the ability to plan and using appropriate methods undertake tasks within predetermined parameters,
- demonstrate the ability to use knowledge critically and systematically to model, simulate, predict and evaluate series of events on the basis of relevant information, – demonstrate the ability to design and manage products, processes and systems while taking into account the circumstances and needs of individuals and the targets for economically, socially and ecologically sustainable development set by the community,
- demonstrate the capacity for teamwork and collaboration with various constellations, and
- demonstrate the ability to present and discuss information, problems and solutions in speech and writing and in dialogue with different audiences.

Judgement and approach

For a Degree of Bachelor of Science in Engineering, the student shall

- demonstrate the ability to make assessments informed by relevant disciplinary, social and ethical aspects,
- demonstrate insight into the possibilities and limitations of technology, its role in society and the responsibility of the individual for how it is used, including social and economic aspects as well as environmental and occupational health and safety aspects, and
- demonstrate the ability to identify the need for further knowledge and undertake ongoing development of his or her skills.

Independent project (degree project)

A requirement for the award of a Degree of Bachelor of Science in Engineering is completion by the student of an independent project (degree project) for at least 15 credits.

Local degree requirements

To be awarded a Degree of Bachelor of Science in Engineering at Chalmers, the student shall together with the above mentioned requirements, also fulfil the local degree requirements below:

- Have completed the course requirements of at least 60 credits for which final examinations were taken at Chalmers. The degree project can be included in these 60 credits.
- Have completed the course requirements in the main field of study mathematics of at least 15 credits. The degree project may not be included in these 15 credits.
- Have completed the course requirements within the field of Environment and Sustainable Development (MHU) that must be included in the programme for a total of 7.5 credits. See also chapter 7.
- Have completed the course requirements and attained the outcomes stated in the respective programme syllabus.

Title of qualification

The title of the qualification is Högskoleingenjörsexamen The English translation of the title of the qualification is Degree of Bachelor of Science in Engineering. The specialisation is stated in the degree certificate. The degree certificate also states the name of the concentration for those programs that have one in year 3.

14.2. Degree of Bachelor of Science in Marine Engineering

Scope

A Degree of Bachelor of Science in Marine Engineering is awarded after the student has completed the courses required to gain 180 credits.

Learning outcomes

For a Degree of Bachelor of Science in Marine Engineering the student shall demonstrate the knowledge and skills as well as the requisite placement experience required for certification as a marine engineer.

Knowledge and understanding

For a Degree of Bachelor of Science in Marine Engineering, the student shall

- demonstrate knowledge of the disciplinary foundation of the field and proven experience as well as awareness of current research and development work, and
- demonstrate the broad knowledge of marine engineering required to assume responsibility in a leading position for the operation and maintenance of marine mechanical and electrical systems and for fire safety.

Competence and skills

For a Degree of Bachelor of Science in Marine Engineering, the student shall

- demonstrate the ability to plan and use appropriate methods to undertake tasks within predetermined parameters as well as the capacity in all operational activities to comply with and implement suitable marine safety measures,
- demonstrate the ability to use knowledge critically and systematically to model, simulate, predict and evaluate series of events on the basis of relevant information
- demonstrate the ability to manage products, processes and occupational health and safety while taking into account the circumstances and needs of individuals and the targets for economically, socially and ecologically sustainable development set by the community,
- demonstrate the capacity to think in terms of marine safety and also for teamwork and cooperation in various constellations, and
- demonstrate the ability in both national and international contexts to present and discuss information, problems and solutions in speech and writing in dialogue with different audiences.

Judgement and approach

For a Degree of Bachelor of Science in Marine Engineering, the student shall

- demonstrate the ability in the field of shipping to make assessments informed by the relevant disciplinary, social and ethical aspects
- demonstrate insight into the possibilities and limitations of technology, its role in society and the responsibility of the individual for how it is used, including social and economic aspects as well as environmental and occupational health and safety aspects, and
- demonstrate the ability to identify the need for further knowledge and undertake ongoing development of his or her skills.

Independent project (degree project)

A requirement for the award of a Degree of Bachelor of Science in Marine Engineering is completion by the student of an independent project (degree project) for at least 15 credits.

Miscellaneous

Programmes leading to the award of a Degree of Bachelor of Science in Marine Engineering shall fulfil the requirements laid down in the 1978 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers in its new wording (STCW Convention). These standards are to be regarded as minimum standards.

Local degree requirements

To be awarded a Degree of Bachelor of Science in Marine Engineering at Chalmers, the student shall together with the above mentioned requirements, also fulfil the local degree requirements below:

- Have completed the course requirements of at least 60 credits for which final examinations were taken at Chalmers. The degree project can be included in these 60 credits.
- Have completed the course requirements within the field of Environment and Sustainable Development (MHU) that must be included in the programme for a total of 7.5 credits. See also 8.
- Have completed the course requirements and attained the outcomes stated in the respective programme syllabus.

Title of qualification

The title of the qualification is Sjöingenjörsexamen. The English translation of the title of the qualification is Degree of Bachelor of Science in Marine Engineering.

14.3. Degree of Bachelor of Science in Nautical Science**Scope**

A Degree of Bachelor of Science in Nautical Science is awarded after the student has completed the courses required to gain 180 credits.

Learning outcomes

For a Degree of Bachelor of Science in Nautical Science the student shall have the knowledge and skills as well as the requisite placement experience required for certification as a qualified Degree of Master mariner.

Knowledge and understanding

For a Degree of Bachelor of Science in Nautical Science, the student shall

- demonstrate knowledge of the disciplinary foundation of the field and proven experience as well as awareness of current research and development work, and
- demonstrate the broad knowledge of nautical science required to assume operational responsibility in a leading position for crews, vessels and cargo.

Competence and skills

For a Degree of Bachelor of Science in Nautical Science, the student shall

- demonstrate the ability to plan and use appropriate methods to undertake tasks within predetermined time frames, particularly those concerning marine safety measures as well as the capacity in all operational activities to observe and implement suitable marine safety measures,
- demonstrate the ability to use knowledge critically and systematically to model, simulate, predict and evaluate series of events on the basis of relevant information,
- demonstrate the ability to manage products, processes and occupational health and safety while taking into account the circumstances and needs of individuals and the targets for economically, socially and ecologically sustainable development set by the community,
- demonstrate the capacity to think in terms of marine safety and also for teamwork and cooperation in various constellations, and
- demonstrate the ability in both national and international contexts to present and discuss information, problems and solutions in speech and writing in dialogue with different audiences.

Judgement and approach

For a Degree of Bachelor of Science in Nautical Science, the student shall

- demonstrate the ability in the field of shipping to make assessments informed by the relevant disciplinary, social and ethical aspects,
- demonstrate insight into the possibilities and limitations of technology, its role in society and the responsibility of the individual for how it is used, including social and economic aspects as well as environmental and occupational health and safety aspects, and
- demonstrate the ability to identify the need for further knowledge and undertake ongoing development of his or her skills.

Independent project (degree project)

A requirement for the award of a Degree of Bachelor of Science in Nautical Science is completion by the student of an independent project (degree project) for at least 15 credits.

Miscellaneous

Programmes leading to the award of a Degree of Bachelor of Science in Nautical Science shall fulfil the requirements laid down in the 1978 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers in its new wording (STCW Convention). These standards are to be regarded as minimum standards.

Local degree requirements

To be awarded a Degree of Bachelor of Science in Nautical Science at Chalmers, the student shall together with the above mentioned requirements, also fulfil the local degree requirements below:

- Have completed the course requirements of at least 60 credits for which final examinations were taken at Chalmers. The degree project can be included in these 60 credits.
- Have completed the course requirements within the field of Environment and Sustainable Development (MHU) that must be included in the programme for a total of 7.5 credits. See also chapter 7.
- Have completed the course requirements and attained the outcomes stated in the respective programme syllabus.

Title of qualification

The title of the qualification is Sjökaptensexamen. The English translation of the title of the qualification is Degree of Bachelor of Science in Nautical Science.

14.4. Degree of Bachelor of Science in Secondary Education with a specialisation in teaching in the upper secondary school

Scope

A Degree of Bachelor of Science in Secondary Education with a specialisation in teaching in the upper secondary school with one teaching subjects (first cycle) is awarded after the student has completed the courses required to gain 210 credits, including subject studies of 120 credits in one teaching subject.

Learning outcomes

For a Degree of Bachelor of Science in Secondary Education with a specialisation in teaching in the upper secondary school the student shall demonstrate the knowledge and skills required to work autonomously as a subject teacher in the specialisation for which the qualification is awarded. The student shall also demonstrate knowledge and skills for other forms of teaching for which the qualification, pursuant to the applicable regulations, qualifies him or her.

Knowledge and understanding

For a Degree of Bachelor of Science in Secondary Education with a specialisation in teaching in the upper secondary school the student shall

- demonstrate the knowledge of didactics and subject didactics including methodology required for teaching and learning in the specialisation or specialisations for which the qualification is awarded as well as for professional practice in other respects and also show awareness of adult learning.
- demonstrate specialised knowledge of the theory of knowledge and qualitative and quantitative research methods as well as the relationship between the disciplinary foundation and proven experience and its significance for professional practice.
- demonstrate the knowledge about children´s development, learning, needs and circumstances required for the specialisation for which the qualification is awarded.
- demonstrate knowledge and understanding of social relationships, conflict management and leadership.
- demonstrate knowledge of the organisation of the school system, relevant regulatory documents, syllabus theory and different educational and didactical perspectives as well as knowledge of the history of the school system, and
- demonstrate specialised knowledge of assessment and grading.
- demonstrate the subject knowledge required for professional practice, including both an overview of the main fields of the subjects studied and specialised knowledge in certain areas of the fields as well as insight into current research and development work.

For a Degree of Bachelor of Science in Secondary Education with a specialisation in teaching in the upper secondary school the student shall also:

- demonstrate the subject knowledge required for professional practice, including both broad knowledge of the field and a considerable degree of specialised knowledge in certain areas of the field as well as specialised insight into current research and development work.

Competence and skills

For a Degree of Bachelor of Science in Secondary Education with a specialisation in teaching in the upper secondary school the student shall

- demonstrate a specialised capacity to create conditions in which all pupils can learn and develop.
- display the capacity to benefit from, systematise and reflect critically and autonomously on personal experience, the experience of others and relevant research findings and thereby contribute

to professional development and the formation of knowledge in the subjects, subject areas and subject didactics.

- demonstrate the capacity to take advantage of the knowledge and experiences of pupils to stimulate the learning and development of every pupil.
- demonstrate the capacity to apply the didactics and subject didactics including methodology required for teaching and learning in the specialisation or specialisations as well as the professional practice for which the qualification is awarded.
- demonstrate the capacity to plan, implement, evaluate and develop teaching and educational processes individually and together with others in order to stimulate the learning and development of every pupil in the best way possible.
- demonstrate the capacity to identify and, in cooperation with others, meet pupils' special educational needs, including special educational measures for pupils with neuropsychiatric disorders.
- demonstrate the capacity to observe, document and analyse their pupils' development and learning in relation to educational objectives and to inform and cooperate with pupils and their caregivers.
- demonstrate the capacity to communicate and instil core educational values, including human rights and the fundamental democratic values.
- demonstrate the capacity to prevent and counteract discrimination and other forms of victimisation of pupil.
- demonstrate the capacity to respect, communicate and instil the perspective of gender equality and equal rights perspective in educational processes.
- demonstrate the capacity to communicate and reflect on issues relating to identity, sexuality and relationships.
- demonstrate communicative capacity in listening, speaking and writing to support educational processes
- demonstrate the capacity to use digital aids assuredly and critically in educational processes and to take into account the significance of the role of different media and digital environments in this respect, and
- demonstrate the capacity to acquire, during educational processes, skills that are valuable for professional practice.

Judgement and approach

For a Degree of Bachelor of Science in Secondary Education with a specialisation in teaching in the upper secondary school the student shall

- demonstrate self-awareness and the capacity for empathy
- demonstrate the capacity to adopt a professional approach to pupils and their caregivers
- demonstrate the capacity to make assessments in educational processes on the basis of relevant scientific, social and ethical aspects with particular respect for human rights, especially children's rights according to the Convention on the Rights of the Child, and sustainable development, and
- demonstrate the capacity to identify the need for further knowledge and to develop his or her own skills in pedagogical practice.

Independent project (degree project)

A requirement for the award of a Degree of Bachelor of Science in Secondary Education with a specialisation in teaching in the upper secondary school is completion by the student of an independent project (degree project) for at least 15 credits.

Local degree requirements

To be awarded the Degree of Bachelor of Science in Secondary Education with a specialisation in teaching in the upper secondary school with one teaching subject at Chalmers, the student shall together with the above mentioned requirements, also fulfil the local degree requirements below:

- Have completed the course requirements of at least 60 credits for which final examinations were taken at Chalmers. The degree project can be included in these 60 credits.
- Have completed the course requirements and attained the outcomes stated in the respective programme syllabus.

Title of qualification

The title of the qualification is Ämneslärare med inriktning mot arbete i gymnasieskola. The English translation of the title of the qualification is Degree of Bachelor of Science in Secondary Education with a specialisation in teaching in the upper secondary school. The degree certificate states the teaching subject covered by the qualification and the title of the programme Learning and Leadership, Supplementary Study Programme.

15. Qualification descriptors for second cycle professional qualifications

15.1. Degree of Master of Architecture

Scope

A Degree of Master of Architecture is awarded after the student has completed the courses required to gain 300 credits.

Learning outcomes

For a Degree of Master of Architecture the student shall demonstrate the knowledge and skills required to work autonomously as an architect.

Knowledge and understanding

For a Degree of Master of Architecture, the student shall

- demonstrate knowledge of the disciplinary and artistic foundation of the field and insight into relevant research and development work, and
- demonstrate both broad knowledge and understanding of architectural theory and history as well as specialised knowledge of architectural design, planning and the development of built environments and also the processes, methods and statutory provisions that affect them.

Competence and skills

For a Degree of Master of Architecture, the student shall

- demonstrate the ability to plan, design, maintain and renew built environments and buildings in complex contexts and with a holistic approach informed by various demands, in particular the sustainable development required by the community,
- demonstrate the ability to use appropriate architectonic methods and syntheses to undertake and evaluate advanced and creative tasks autonomously and critically and within predetermined parameters in the field of architecture and urban planning,
- demonstrate the ability to apply knowledge about physical circumstances and technological principles to the erection and alteration of buildings,
- demonstrate the capacity for teamwork and collaboration with various constellations, and
- demonstrate the ability in dialogue with different audiences in both national and international contexts to present and discuss, using images and models, his or her conclusions and the knowledge and reasoning on which they are based in speech, writing or some other way and so contribute to the development of the profession and professional practice.

Judgement and approach

For a Degree of Master of Architecture, the student shall

- demonstrate the ability to adopt a holistic view in making judgements and appraisals informed by the relevant disciplinary, social, aesthetic and ethical aspects and which at the same time take into account the different needs and functional abilities of communities and individuals as well as the interaction between individuals and their physical settings, including occupational health and safety,
- demonstrate the disposition to base his or her work on high-quality, well-designed long-term functional solutions, and
- demonstrate the ability to identify the personal need for further knowledge and undertake ongoing development of his or her skills.

Independent project (degree project)

A requirement for the award of a Degree of Master of Architecture is completion by the student of an independent project (degree project) at second cycle level for at least 30 credits.

Miscellaneous

The programme must meet the requirements set forth in the European Professional Qualifications Directive 2005/36/EC.

Local degree requirements

To be awarded a Degree of Master of Architecture at Chalmers, the student shall together with the above mentioned requirements, also fulfil the local degree requirements below:

- Have completed the course requirements of at least 90 credits for which examinations are taken at Chalmers, of which at least 45 credits must be at the second cycle level. The degree project can be included in these 45 credits.
- Have completed the course requirements of at least 90 credits at the second cycle level. The degree project can be included in these 90 credits.
- Have completed the course requirements within the field of Environment and Sustainable Development (MHU) that must be included in the programme for a total of 7.5 credits. See also chapter 7.
- Have completed the course requirements of at least 150 credits within the theme of Architectural design project.
- Have completed the course requirements and attained the outcomes stated in the respective programme syllabus. This applies to the master of architecture as well as an accredited master's programme, or an agreement for double master's degree.

Title of qualification

The title of the qualification is Arkitektexamen. The English translation of the title of the qualification is Degree of Master of Architecture. The degree certificate shall state either "Master of Architecture" or "Master of Architecture and Engineering" as well as the master's programme that the student has completed.

15.2. Degree of Master of Science in Engineering

Scope

A Degree of Master of Science in Engineering is awarded after the student has completed the courses required to gain 300 credits.

Learning outcomes

For a Degree of Master of Science in Engineering the student shall demonstrate the knowledge and skills required to work autonomously as a graduate engineer.

Knowledge and understanding

For a Degree of Master of Science in Engineering, the student shall

- demonstrate knowledge of the disciplinary foundation of and proven experience in his or her chosen field of technology as well as insight into current research and development work, and
- demonstrate both broad knowledge of his or her chosen field of technology, including knowledge of mathematics and the natural sciences, as well as a considerable degree of specialised knowledge in certain areas of the field.

Competence and skills

For a Degree of Master of Science in Engineering, the student shall

- demonstrate the ability to identify, formulate and deal with complex issues autonomously and critically and with a holistic approach and also to participate in research and development work and so contribute to the formation of knowledge,
- demonstrate the ability to create, analyse and critically evaluate various technological solutions,
- demonstrate the ability to plan and use appropriate methods to undertake advanced tasks within predetermined parameters,
- demonstrate the ability to integrate knowledge critically and systematically as well as the ability to model, simulate, predict and evaluate sequences of events even with limited information,
- demonstrate the ability to develop and design products, processes and systems while taking into account the circumstances and needs of individuals and the targets for economically, socially and ecologically sustainable development set by the community,
- demonstrate the capacity for teamwork and collaboration with various constellations, and
- demonstrate the ability to clearly present his or her conclusions and the knowledge and arguments on which they are based in speech and writing to different audiences in both national and international contexts

Judgement and approach

For a Degree of Master of Science in Engineering, the student shall

- demonstrate the ability to make assessments informed by relevant disciplinary, social and ethical aspects as well as awareness of ethical aspects of research and development work,
- demonstrate insight into the possibilities and limitations of technology, its role in society and the responsibility of the individual for how it is used, including both social and economic aspects and also environmental and occupational health and safety considerations, and
- demonstrate the ability to identify the personal need for further knowledge and undertake ongoing development of his or her skills.

Independent project (degree project)

A requirement for the award of a Degree of Master of Science in Engineering is completion by the student of an independent project (degree project) at second cycle level for at least 30 credits.

Local degree requirements

To be awarded a Degree of Master of Science in Engineering at Chalmers, the student shall together with the above mentioned requirements, also fulfil the local degree requirements below:

- Have completed the course requirements of at least 90 credits for which final examinations are taken at Chalmers, of which at least 45 credits must be at the second cycle level. The degree project can be included in these 45 credits.
- Have completed the course requirements of at least 90 credits at the second cycle level. The degree project can be included in these 90 credits.
- Have completed the course requirements in the main field of study of mathematics of at least 30 credits. The degree project may not be included in these 30 credits.
- Have completed the course requirements within the field of Environment and Sustainable Development (MHU) that must be included in the programme for a total of 7.5 credits. See also chapter 7.

- Have completed the course requirements within the field of Humans, Technology, Society (MTS) that must be included in the programme for a total of 7.5 credits. See also chapter 7.
- Have completed the courses required and attained the outcomes stated in the respective programme syllabus. This applies to the master of science in engineering programme as well as an accredited master's programme, or an agreement for double master's degree.

Title of qualification

The title of the qualification is Civilingenjörsexamen. The English translation of the title of the qualification is Degree of Master of Science in Engineering. The degree certificate states the specialisation and the master's programme that the student has completed. If the student has completed an agreement for a double master's degree the degree certificate states the specialisation of study, and the name of the agreement.

15.3. Degree of Master of Science in Secondary Education with a specialisation in teaching in the upper secondary school

Scope

A Degree of Master of Science in Secondary Education with a specialisation in teaching in the upper secondary school is earned at the second cycle level and awarded after the student has completed the courses required to gain 300 credits.

For the award of a Degree of Master of Science in Secondary Education with a specialisation in teaching in the upper secondary school, the programme shall comprise subject courses and courses in subject didactics for 225 credits and study of two teaching subjects. Studies shall include one specialisation for 120 credits in a relevant subject or subject area and one specialisation for 90 credits in another relevant subject or subject area.

The subject courses and courses in subject didactics shall include 15 credits for a subject-related placement.

Learning outcomes

For of Master of Science in Secondary Education with a specialisation in teaching in the upper secondary school the student shall demonstrate the knowledge and skills required to work autonomously as a subject teacher in the specialisation for which the qualification is awarded. The student shall also demonstrate knowledge and skills for other forms of teaching for which the qualification, pursuant to the applicable regulations, qualifies him or her.

Knowledge and understanding

For a Degree of Master of Science in Secondary Education with a specialisation in teaching in the upper secondary school the student shall

- demonstrate the knowledge of didactics and subject didactics including methodology required for teaching and learning in the specialisation or specialisations for which the qualification is awarded as well as for professional practice in other respects and also show awareness of adult learning.
- demonstrate specialised knowledge of the theory of knowledge and qualitative and quantitative research methods as well as the relationship between the disciplinary foundation and proven experience and its significance for professional practice.
- demonstrate the knowledge about children's development, learning, needs and circumstances required for the specialisation for which the qualification is awarded.
- demonstrate knowledge and understanding of social relationships, conflict management and leadership.

- demonstrate knowledge of the organisation of the school system, relevant regulatory documents, syllabus theory and different educational and didactical perspectives as well as knowledge of the history of the school system, and
- demonstrate specialised knowledge of assessment and grading.
- demonstrate the subject knowledge required for professional practice, including both an overview of the main fields of the subjects studied and specialised knowledge in certain areas of the fields as well as insight into current research and development work.

For a Degree of Master of Science in Secondary Education with a specialisation in teaching in the upper secondary school the student shall also:

- demonstrate the subject knowledge required for professional practice, including both broad knowledge of the field and a considerable degree of specialised knowledge in certain areas of the field as well as specialised insight into current research and development work.

Competence and skills

For a Degree of Master of Science in Secondary Education with a specialisation in teaching in the upper secondary school the student shall together with the above mentioned requirements, also fulfil the local requirements below:

- demonstrate a specialised capacity to create conditions in which all pupils can learn and develop.
- display the capacity to benefit from, systematise and reflect critically and autonomously on personal experience, the experience of others and relevant research findings and thereby contribute to professional development and the formation of knowledge in the subjects, subject areas and subject didactics.
- demonstrate the capacity to take advantage of the knowledge and experiences of pupils to stimulate the learning and development of every pupil.
- demonstrate the capacity to apply the didactics and subject didactics including methodology required for teaching and learning in the specialisation or specialisations as well as the professional practice for which the qualification is awarded.
- demonstrate the capacity to plan, implement, evaluate and develop teaching and educational processes individually and together with others in order to stimulate the learning and development of every pupil in the best way possible.
- demonstrate the capacity to identify and, in cooperation with others, meet pupils' special educational needs, including special educational measures for pupils with neuropsychiatric disorders.
- demonstrate the capacity to observe, document and analyse their pupils' development and learning in relation to educational objectives and to inform and cooperate with pupils and their caregivers.
- demonstrate the capacity to communicate and instil core educational values, including human rights and the fundamental democratic values.
- demonstrate the capacity to prevent and counteract discrimination and other forms of victimisation of pupil.
- demonstrate the capacity to respect, communicate and instil the perspective of gender equality and equal rights perspective in educational processes.
- demonstrate the capacity to communicate and reflect on issues relating to identity, sexuality and relationships.
- demonstrate communicative capacity in listening, speaking and writing to support educational processes
- demonstrate the capacity to use digital aids assuredly and critically in educational processes and to take into account the significance of the role of different media and digital environments in this respect, and

- demonstrate the capacity to acquire, during educational processes, skills that are valuable for professional practice.

Judgement and approach

For a Degree of Master of Science in Secondary Education with a specialisation in teaching in the upper secondary school the student shall

- demonstrate self-awareness and the capacity for empathy
- demonstrate the capacity to adopt a professional approach to pupils and their caregivers
- demonstrate the capacity to make assessments in educational processes on the basis of relevant scientific, social and ethical aspects with particular respect for human rights, especially children's rights according to the Convention on the Rights of the Child, and sustainable development, and
- demonstrate the capacity to identify the need for further knowledge and to develop his or her own skills in pedagogical practice.

Independent project (degree project)

A requirement for the award of a Degree of Master of Science in Secondary Education with a specialisation in teaching in the upper secondary school is completion by the student of an independent project (degree project) for at least 30 credits at second cycle level or two such projects for at least 15 credits at second cycle level in one or two of the subjects studied during the programme.

Local degree requirements

To be awarded the Degree of Master of Science in Secondary Education with a specialisation in teaching in the upper secondary school at Chalmers, the student shall together with the above mentioned requirements, also fulfil the local degree requirements below:

- Have completed the course requirements of at least 90 credits for which examinations are taken at Chalmers, of which at least 45 credits must be at the second cycle level. The degree project can be included in these 45 credits.
- Have completed the course requirements of at least 90 credits at the second cycle level. The degree project can be included in these 90 credits.
- Have completed the course requirements and attained the outcomes stated in the programme syllabus for the master programme Learning and Leadership (MPLOL).

Title of qualification

The title of the qualification is Ämneslärarexamen med inriktning mot arbete i gymnasieskolan. The English translation of the title of the qualification is Degree of Master of Science in Secondary Education with a specialisation in teaching in the upper secondary school. The degree certificate states the two teaching subjects covered by the qualification, and the master programme Learning and Leadership (MPLOL).

16. Validity of the document

This policy document is valid from 12 June 2023 until further notice.