Degree regulations of the Aalto University School of Science

Approved by the Academic Committee for Science on 11 June 2013. (Amendments of 17 September 2013 included)

1 General provisions

Section 1 Mission

As a unit defined in Section 3 of the Constitution of the Aalto University Foundation, the Aalto University School of Science, hereinafter the school, operates in the fields of science and technology. The school carries out scientific research in its fields, provides related higher education leading to degrees, and supports continuing education and societal services related to its fields of expertise in accordance with the Aalto University strategy. The special mission of the School of Science is to create a scientific basis for the creation of new technologies in various fields, to provide basic education in its field also to students of other disciplines, and to train students as visionary experts in its fields and in emerging fields. In carrying out its mission, the school shall act in close interaction with the other schools of Aalto University.

The school provides bachelor’s, master’s, doctoral and adult education.

The school awards the degrees provided in Section 2 below as well as non-degree studies and study modules not included in them.

Section 2 Degrees

The school awards the following degrees:

1. Bachelor of Science (Technology)

2. Master of Science (Technology)

3. the pre-doctoral degree of Licentiate of Science (Technology) and Doctor of Science (Technology).

The degrees shall be completed in accordance with the Government Decree on University Degrees (‘degree decree’) of 19 August 2004 (Valtioneuvoston asetus yliopistojen tutkinnoista 794/2004) as
amended, as well as with the Aalto University General Regulations on Teaching and Studying and with the present regulations.

The primary doctoral degree awarded by the school is Doctor of Science (Technology).

For the purposes of the present degree regulations, ‘bachelor’s degree’ refers only to bachelor’s degrees earned at a university and ‘master’s degree’ only to master’s degrees earned at a university.

**Section 3 Organisation of education leading to a degree**

The education leading to bachelor’s and master’s degrees shall be planned and organised in the form of degree programmes focusing on expertise required in the field of science and technology.

The education leading to licentiate and doctoral degrees shall be planned and organised by the doctoral programme in a research-field-specific manner.

The education leading to a degree may be organised in collaboration with one or several Aalto schools or other universities.

**Section 4 Student admissions and right to study**

Students are admitted to the school to pursue both a bachelor’s and master’s degree in accordance with provisions issued separately on student admissions.

Students admitted to pursue both a bachelor’s degree and master’s degree may begin studies towards a master’s degree when they have earned the bachelor’s degree or at least 150 credits towards it.

At any one time, degree students may only have one valid right to study towards a licentiate or doctoral degree in the same field.

Students who do not have a right to pursue a degree at Aalto University may pursue non-degree studies at the school provided they have applied for permission to pursue such studies in a manner specified by the school.
2 Bachelor’s degree

Section 5 Aims of the bachelor’s degree

The education leading to a Bachelor of Science (Technology) shall provide students with:

1. wide-ranging basic knowledge in an easily identifiable and internationally recognised field of science and technology in the course of basic studies and studies towards the major;

2. knowledge and skills needed for scientific thinking and the use of scientific methods;

3. knowledge and skills needed for studies leading to a master’s degree and for continuous learning;

4. capacity for applying the acquired knowledge and skills to work; and

5. adequate language and communication skills.

The education shall be based on scientific research and the practices of the field.

The goals put forth in subsection 1 are specified in the curricula of the degree programmes.

Section 6 Extent and structure of the bachelor’s degree

The extent of the bachelor’s degree shall be 180 credits.

Studies leading to the bachelor’s degree consist of

1. basic studies (65–70 cr);

2. studies towards the major (60–65 cr);

3. studies towards the minor (20–25 cr); and

4. elective studies (25–30 cr).

The combined extent of basic studies and studies towards the major shall be 130 cr and the combined extent of the minor and elective studies 50 cr.
Studies towards the major include the bachelor’s thesis (10 credits).

Section 7 Requisite components of the bachelor’s degree

To earn a bachelor’s degree, students must complete the studies referred to in Section 6 above.

The courses to be included in the degree are specified in a personal study plan prepared in accordance with the degree requirements.

Students shall demonstrate that they have achieved the goals set for the degree, for the studies and for the bachelor’s thesis, and the language proficiency referred to in Section 13. In addition, students shall write a maturity essay.

Section 8 Bachelor’s thesis

The bachelor’s thesis is written while attending the bachelor’s thesis seminar.

Students educated in Finnish or Swedish write their bachelor’s theses in the language they have been educated and on a topic related to their majors. Students may be granted permission to use a third language by the teacher in charge of the bachelor’s thesis seminar. Separate provisions on the use of other languages in bachelor’s theses shall be issued by the school.

Students who have been educated in a language other than Finnish or Swedish or have been educated abroad may write their bachelor’s theses in English.

The bachelor’s thesis is a public document. It shall be available at the school.

As necessary, further instructions on the bachelor’s thesis and the related process shall be issued by the school.

3 Master’s degree

Section 9 Aims of the master’s degree

The aim of the education leading to the degree of Master of Science (Technology) is to:

1. provide students with in-depth knowledge of the field of the
major and give them the knowledge and skills needed to understand the challenges of the field from the points of view of users, technical and social systems, and the environment;

2. provide students with the knowledge and skills needed for operating as an expert and developer of the field;

3. provide students with the knowledge and skills needed to apply scientific knowledge and scientific methods independently;

4. provide students with the knowledge and skills needed for scientific postgraduate education and

5. provide students with the language and communication skills needed to follow the scientific development of the field and to engage in scholarly communication in the field of science and technology.

The education shall be based on scientific research and the professional practices of fields requiring expertise in science and technology.

**Section 10 Extent and structure of the master’s degree (17 September 2013)**

The extent of the master’s degree shall be 120 credits.

Studies leading to the master's degree consist of

1. the master’s thesis (30 cr)

2. a major (55–65 cr) or both a major (40–45 cr) and a minor (20–25 cr)

3. elective studies (25–35 cr)

The decision on the inclusion of a minor into the structure of the degree programme and the selection of suitable minors for it rests with the degree programme.

On reasonable grounds, programmes implemented in the form of international collaboration may deviate from the outlines specified above.

**Section 11 Requisite components of the master’s degree**

To earn a master’s degree, students must complete the studies referred
to in Section 10 above.

The courses to be included in the degree are specified in a personal study plan prepared in accordance with the degree requirements.

Students shall demonstrate that they have achieved the goals set for the degree, for the studies and for the master’s thesis, and the language proficiency referred to in Section 13. In addition, students shall write a maturity essay.

Section 12 Master’s thesis

The master’s thesis shall be written on a topic related to the major. On reasonable grounds, the school may also grant permission for the thesis to be written on a topic related to the minor. (17 September 2013)

Students may apply for a topic for their master’s thesis when the bachelor's degree and a minimum of 45 credits counted towards the master’s degree have been completed.

The topic and the language of the master's thesis are approved by the school upon application by the student; the school also appoints a thesis supervisor and one or two thesis advisors for it. The master’s thesis supervisor shall be one of the professors of Aalto University as defined in Section 16 of the Aalto University Bylaws. For special reasons, the supervisor may also be another professor or a university lecturer or senior university lecturer in the Aalto University lecturer career system working at Aalto University as their main occupation. The thesis advisor shall hold at least a master’s degree. (17 September 2013)

The master’s thesis must be completed in one year. Students who fail to submit the master’s thesis for examination by the deadline shall submit a new thesis topic application to the school.

The master's thesis includes a seminar presentation or an equivalent presentation.

The evaluation and approval of the master's thesis shall be requested in writing from the school.

The master’s thesis is a public document. It shall be available at the school.

As necessary, further instructions on the master’s thesis and the related process shall be issued by the school.
4 Provisions applied to both the bachelor’s and master’s degrees

Section 13 Language proficiency

Students must demonstrate in studies included in education for a bachelor's or master's degree or otherwise that they have attained:

1. such proficiency in Finnish and Swedish as is required of civil servants in bilingual public agencies and organisations under Section 6(1) of the Act on the Knowledge of Languages Required of Personnel in Public Bodies (Laki julkisyhteisöjen henkilöstöltä vaadittavasta kielitaidosta 424/2003) and which is necessary for their field; and

2. such proficiency in at least one foreign language as is needed to follow developments in the field and to operate in an international environment.

Students who have been educated in a language other than Finnish or Swedish or have been educated abroad shall only be required to demonstrate, in studies included in education for a bachelor's or master's degree or otherwise, that they have attained only the language proficiency referred to in subsection 1(2).

A partial or full exemption from the language proficiency requirements set forth in subsection 1 may be granted by the school only for special reasons.

Students admitted to the school to pursue a bachelor’s degree who, under subsection 2, have been exempted by the school from the requirements set forth in subsection 1(1) either completely or only with regard to the national language in which they are required to demonstrate satisfactory written and oral proficiency, shall complete a minimum of two credits in a language of their choice to meet the foreign language requirement of the bachelor's degree.

Section 14 Demonstrating proficiency in Finnish and Swedish

The excellent oral and written language proficiency necessary for the field of the student required under Section 13 subsection 1(1) above shall be demonstrated by writing a maturity essay demonstrating command of the field of the thesis using that national language of Finland which the student has been educated in (Finnish or Swedish).

Students who have already demonstrated their language proficiency in a maturity essay for a Bachelor of Science (Technology) or for another bachelor’s degree are not required to demonstrate it again by writing a
maturity essay for the master's degree.

The satisfactory oral and written language proficiency necessary for the field, required under Section 13 subsection 1(1), may be demonstrated by passing either an examination or a designated course in the other national language of Finland (Swedish or Finnish) offered by the university, or by passing an equivalent examination at another higher education institution. Students who have already demonstrated their language proficiency for a Bachelor of Science (Technology) or for another bachelor's degree are not required to demonstrate it again for the master's degree.

Students exempted from the language proficiency requirements referred to in Section 13(1) shall write their maturity essay in a language separately determined by the school.

Section 15 Demonstrating proficiency in a foreign language

Students shall demonstrate to have acquired the level of written and oral proficiency required under Section 13, subsection 1(2) in one foreign language included in the curriculum.

The language proficiency required under the previous subsection shall be demonstrated by passing a foreign language course or courses. These courses place emphasis on the language needed in the field of study. If the university organises an examination for the purpose of demonstrating the requisite language proficiency in a given foreign language, the required language proficiency may be demonstrated either wholly or partly by passing that examination. Students who have already demonstrated their language proficiency for a Bachelor of Science (Technology) or for another bachelor’s degree are not required to demonstrate it again for the master's degree.

Section 16 Other studies

The bachelor’s degree may include a work placement furthering professional development, while the master’s degree may include a work placement improving expertise. The content and extent of the work placement is specified in the curriculum.

5 Doctoral education

Section 17 Organisation of doctoral education

The doctoral education organised by the school is scientific doctoral
education. Doctoral education shall be planned and organised by the doctoral programme of the school in the form of research field-specific entities focusing on scientific thinking and on the production of new knowledge in some area of science and technology.

The school shall decide the doctoral research fields and approve the professors in charge of them. The professor in charge of the research field has to be a professor of the school on the Aalto University tenure track.

Section 18 Aims of doctoral education

The aim of doctoral education is that students:

1. become well-versed in their field of research and its social significance and gain knowledge and skills needed to apply scientific research methods independently and critically and to produce new scientific knowledge within the field of research;

2. become conversant with the development, basic problems and research methods of their field of research; and

3. gain such knowledge of the general theory of science and of other disciplines relating to the field of research as enables them to follow developments in them.

Section 19 Doctoral studies

Doctoral studies are completed in the form of study modules. Those admitted to doctoral education shall:

1. pursue studies that deal with preparation for scientific work, the application of research results and the dissemination of research findings (5–20 cr) and

2. gain a broader knowledge of a research field than required for bachelor's or master's degrees (20–35 cr).

The total extent of the studies mentioned above shall be 40 credits.

The school may, as necessary, require that students admitted to doctoral education complete additional studies in order to earn the degrees referred to in Sections 21 and 23 below.
20 Content of studies and thesis

The school approves the research field for each doctoral student and assigns one of the professors in charge of that research field as the supervising professor for the student. For special reasons, a professor not in charge of the research field may be designated as the co-supervisor of the student.

The school approves the contents of the study modules referred to in the Section 1 paragraphs 1 and 2 above at the proposal of the supervising professor.

The school approves, upon application by the student, the topic of the licentiate or doctoral thesis, appoints a supervising professor and one or more thesis advisors for it, and takes a decision on the language, examination and approval of the thesis.

The thesis advisor shall hold a Doctor of Science (Technology) or a similar academic doctoral degree. As necessary, the supervising professor of the thesis may also act as the thesis advisor.

The licentiate or doctoral degree may also include applicable courses completed before the completion of the bachelor's or master's degree but not counted towards them, or applicable courses completed at other Aalto University schools or other universities.

Section 21 Requisite components of the Licentiate of Science (Technology)

To earn the degree of Licentiate of Science (Technology), students shall:

1. complete the studies referred to in Section 19 and

2. write a licentiate thesis.

Section 22 Licentiate thesis

In a licentiate thesis, students shall demonstrate good conversance with the field of research and the capability of independently and critically applying scientific research methods.

The format of the licentiate thesis complies with the provisions set forth in the Section 23(4) of the Government Decree on University Degrees (794/2004).

The licentiate thesis is presented at the school. The school appoints,
upon application by the student, an examiner to the licentiate thesis and requests a statement from the examiner and from the supervising professor of the student. The student is provided with an opportunity to reply to the statements, after which the school decides the approval and grading of the licentiate thesis.

Without reasonable grounds, the examination of a licentiate thesis shall not take more than two months from the date of submission of the thesis and the related application to the school.

Section 23 Requisite components of the doctoral degree

To earn a doctoral degree, students shall:

1. either earn a Licentiate of Science (Technology) or complete the studies referred to in Section 19;

2. demonstrate independent and critical thinking in relation to their field of research, as well as

3. write a doctoral dissertation and defend it in public.

A doctoral dissertation shall contribute to new scientific knowledge.

Section 24 Doctoral dissertation

The doctoral dissertation is written on the research field approved for the student.

The format of the doctoral dissertation complies with the provisions set forth in the Section 22(3) of the Government Decree on University Degrees (794/2004).

A doctoral dissertation is a public document which shall be on display at the school.

Further provisions on the manuscript of a doctoral dissertation and the related process shall be issued by the school.

Section 25 Granting permission to publish

In order to obtain permission to publish the dissertation, the doctoral candidate shall submit the manuscript of the dissertation and a related request for a permission to publish it to the school.

Upon receipt of the manuscript and the application, the school shall
decide on sending it for preliminary examination and on the choice of the preliminary examiners.

The school obtains and processes the statements of the preliminary examiners regarding the manuscript of the doctoral dissertation. The doctoral candidate is provided with an opportunity to reply to the statements of the preliminary examiners.

The school decides on granting permission to publish upon receipt of the expert statements from the preliminary examiners.

Without special reasons, processing the request for permission to publish shall not take more than four months from the date of submission of the manuscript and the related application to the school.

Section 26 Public examination of a doctoral dissertation

The doctoral dissertation shall be defended at a public examination for which the school determines the date, language and custos and one or two opponents. If, for special reasons, the opponent has acted as a preliminary examiner of the dissertation, an additional opponent shall be appointed.

The work or works constituting the doctoral dissertation shall be on display for examination at the school for a minimum of ten days before the public examination.

Further provisions on the arrangements and proceedings of the public examination of a doctoral dissertation shall be issued by the school.

Section 27 Approval of the doctoral dissertation

Within two weeks of a public examination, the opponent(s) appointed by the school shall, either individually or jointly, submit to the school a written statement concerning the dissertation and its defence. Also any written comments announced as forthcoming at the public examination of the dissertation shall be submitted to the school within two weeks of the public examination.

A demand for failing the dissertation must be made in writing and reasons for it must be given. A demand for failing the dissertation may be made by the opponent or a member of the doctoral programme committee who is entitled to take part in the decision-making concerning the study attainment in question.

The written statements of the opponents and other written comments shall be submitted to the school for use in the approval and grading of
the dissertation. The author shall be given an opportunity to reply to these statements and comments in writing within a time determined by the school.

Subsequently, the school decides on the approval and grading of the dissertation.

6 Miscellaneous provisions

Section 28 Director of degree programme

The director of degree programme is in charge of the planning, execution, assessment and development of the programme. The director of the doctoral programme of the school is in charge of the planning, execution, assessment and development of the doctoral programme.

29 Curriculum of a degree programme

The curriculum of a degree programme is a general presentation of the goals and implementation measures of the programme.

The curriculum of a degree programme shall include at minimum:

1. the learning outcomes of the programme and the scientific and professional skills provided by it;

2. the study modules of the degree programme and their learning outcomes and

3. the name of each course, its extent in credits, timing, learning outcomes, core contents, teaching and working methods, language of instruction, evaluation methods, grading scale, the teacher in charge of the course and the unit or department in charge of organising the course.

Section 30 Evaluation of study attainments

Study attainments are evaluated using the evaluation methods specified in the curriculum.

If the evaluation method specified in the curriculum is a written or oral examination, a minimum of two possibilities must be arranged for taking the examination each year. In such cases, possibilities for earning credit for the courses to be removed from the curriculum shall
be provided at least in the academic year following the removal.

The school may require that students who have tried to pass a given course twice without receiving a passing grade retake the course. (17 September 2013)

Students shall register for an examination one week before the examination is organised unless the teacher accepts later registration. Registration shall be interpreted as participation in the examination unless the registration is cancelled before the start of the examination.

Section 31 Study guidance

Each bachelor’s or master’s degree student shall have a tutor teacher instructing them in their studies, appointed by the school. Tutor teachers shall hold at least a master’s degree.

Each doctoral student has a supervising professor in charge of his or her supervision arrangements. Further provisions shall be issued regarding the supervision of doctoral students.

As part of the study guidance process, each student shall prepare a personal study plan (HOPS) confirmed by the school. Students prepare the HOPS as a tool for planning the contents, extent and duration of their studies. The HOPS is based on the curriculum.

The purpose of study guidance is to support students in choices regarding their studies, in the smooth progress of studies on the planned schedule, and career planning.

Section 32 Credit transfer

When pursuing a degree at the school, students may transfer credits awarded by another Aalto University school or other Finnish or foreign universities or institutions for corresponding studies and replace studies included in the degree with other studies of corresponding level. The school decides the issue on the basis of a written application.

Section 33 Grades

In bachelor’s, master’s, licentiate and doctoral degrees, knowledge demonstrated to be on an acceptable level is graded on a scale of 1–5. The same scale is also used for the master’s thesis. An approved bachelor’s thesis is graded either ‘Pass with Distinction’ or ‘Pass’. In addition, on reasonable grounds, some courses may be graded ‘Pass’ if acceptable knowledge has been demonstrated, provided the use of this
grade has been noted in the curriculum.

Students who, in the course of their studies towards either the bachelor’s or master’s degree, have shown excellent knowledge of the field as well as exceptional maturity and sense of judgment in the thesis may have this recognised in their degree certificate with the phrase 'Pass with Honours'. The decision regarding awarding a degree with honours rests with the school. A degree may be awarded with honours if the weighted average grade of the courses included in the degree (excluding the thesis) and the grade for the bachelor’s thesis both are at least 4.0.

In licentiate and doctoral degrees, an approved licentiate thesis and doctoral dissertation and the study modules referred to in Section 19 (1) are graded either ‘Pass with Distinction’ or ‘Pass’.

The study module referred to in the previous subsection is graded ‘Pass with Distinction’ if the weighted average grade of the courses included in the study module is at least 4.0.

Section 34 Validity of study attainments

Courses or study modules may be included in the bachelor’s and master’s degrees for a maximum of 7 years after their date of completion. On reasonable grounds, the period of validity may be extended at the discretion of the school.

The compulsory language studies included in the degree remain valid indefinitely.

Section 35 Entry into force

These degree regulations enter into force on 1 August 2013.

Section 36 Transitional provisions

Students who were admitted to pursue both a bachelor’s and master’s degree prior to the entry into force of the present degree regulations may complete their degrees in accordance with the degree regulations of the School of Science of 14 June 2011 until 31 October 2016. After that, students will be transferred without separate application to study in accordance with the degree structure specified in the present degree regulations.

Students admitted to pursue both a bachelor’s and master’s degree prior to the entry into force of the present degree regulations shall have
their master's programme determined in accordance with the present degree regulations. Students who have started their studies prior to the entry into force of the present degree regulations will be transferred to study in the master's programme or major best corresponding to the one they were originally admitted to.

Students admitted to pursue both the bachelor's and master's degree prior to the entry into force of the present degree regulations may, upon application, transfer to study in accordance with the current degree regulations in a manner specified by the school.

Doctoral students who have been granted a right to study towards a Doctor of Philosophy prior to 1 August 2013 are entitled to earn a Doctor of Philosophy.

Students who have started their doctoral studies prior to 1 August 2012 are entitled to earn the doctoral degree in accordance with the degree requirements repealed as of 1 August 2012 until 31 December 2015.

Professors designated professors in charge of a research field prior to the entry into force of the present degree regulations may act as professors in charge until the ends of their terms as professors.