

RULES FOR MASTER'S STUDIES IN ENGINEERING AND RELATED FIELDS OF SPECIALIZATION AT REYKJAVIK UNIVERSITY'S SCHOOL OF SCIENCE AND ENGINEERING

As revised 23 November 2010.

These rules describe the objectives, structure and requirements for studies towards Master's degrees in Engineering at Reykjavik University. The rules also describe the objectives, structure and requirements for studies towards Master's degrees in various related fields of specialization based on programmes in engineering. A list of the degree programmes offered is in Appendix 1.

Article 1 General

The Reykjavik University School of Science and Engineering awards MSc degrees in engineering following the satisfactory completion of structured second cycle studies. The MSc programmes are 2 year [120 ECTS] graduate programmes for students who have completed a 3 year [180 ECTS] bachelors degree in engineering.

A student holding a BSc degree from another discipline than engineering can, on completing the above listed credits in a field of specialization within a Master's programme in engineering, obtain a Master's degree in the relevant field of specialization.

Article 2 Objectives and Emphasis

The principal objectives of the Master's programmes are:

- To foster analytical and critical thinking for the solution of projects in the field of engineering and to train students in scientific work methods.
- To enhance the students' basic knowledge of engineering subjects and broaden this knowledge in specific areas through each individual's selection of courses.
- To enable students to obtain considerable specialization. The Master's programmes are research-oriented with an emphasis on independent work under the supervision of faculty members.
- To contribute to the personal fulfilment and growth of each student.

The Master's programmes place a special emphasis on:

- A sound theoretical foundation and an academic approach which provides students with the appropriate tools to tackle a range of different projects and improves their skills in interdisciplinary collaboration.
- Practical studies and applied research in close collaboration with industrial enterprises and institutions in the fields concerned.
- Interdisciplinary collaboration with other graduate programmes at Reykjavik University's.
- International studies in collaboration with universities and enterprises abroad.

Article 3 Accredited Professional Titles and Qualifications

A student graduating with a MSc degree in engineering from the Reykjavik University School of Science and Engineering has completed studies fully pursuant to the Icelandic Minister of Industry's Act no. 8 of 11 March 1996 defining the right to use the professional title of Chartered Engineer (Icelandic: Verkfræðingur), provided the requirements of the Association of Chartered Engineers in Iceland (Icelandic: Verkfræðingafélag Íslands) concerning the composition of courses and the total number of credits taken are also met. See www.vfi.is.

Article 4 Entry Requirements

Applicants for Master's programmes in engineering or related fields at the Reykjavik University School of Science and Engineering shall generally have completed a BSc degree in engineering of at least 180 ECTS credits from Reykjavik University or a comparable degree from an accredited university. Applicants shall generally have passed their BSc examinations with excellent or very good grades and/or show promise in other respects. Each applicant shall write a mission statement. The Director of Graduate Studies (forstöðumaður framhaldsnáms) may accept an applicant who has attained a minimum of 180 ECTS credits in the course of undergraduate studies at Reykjavik University, although the applicant has not yet graduated, if the applicant fulfils the above requirements in other respects.

The Department Heads (sviðsstjórar) of the School of Science and Engineering shall evaluate applications to their departments and propose to the Director of Graduate Studies which applicants shall be accepted. The Graduate Studies Council (námsmatsnefnd meistaranáms) shall set rules of procedure for such evaluation.

The Graduate Studies Council may specify additional requirements whereby a student may be obliged to complete certain courses at undergraduate level or achieve higher grades than generally required in parts or the entirety of a Master's programme. The Director of Graduate Studies shall decide on the tuition fees to be charged as a result of any additional courses that students may be required to complete from the undergraduate curriculum.

Applicants with academic backgrounds (i.e. BSc/BA or MSc/MA degrees) in other disciplines than engineering can also apply for enrolment in a Master's programme. When considering such applications, the Graduate Studies Council shall particularly review the composition of the applicants' studies in regard to whether the fundamental subjects form an appropriate basis for the Master's studies.

The Director of Graduate Studies shall, in consultation with the Graduate Studies Council, decide on the number of students to be accepted for Master's studies.

Article 5 Application Deadlines

The MSc programmes shall generally commence in January for the spring semester and in August for the fall semester. The deadline for applying for enrolment in a programme are decided in concert with other graduate programmes at Reykjavík University. Decisions on the applications, conditional or unreserved, shall be available no later than 30 days after the application deadline. Reykjavik University reserves the right to accept late applications under exceptional circumstances.

Article 6 Study Components

The following study components may yield credits in MSc programmes at the Reykjavík University School of Science and Engineering:

- a) Courses within an MSc programme as listed in the Course Catalogue, cf. Article 7.
- b) Studies abroad under student exchange programmes, cf. Article 13.
- c) Studies in other departments or fields other than engineering, cf. Article 14.
- d) Master's thesis, cf. Article 15.
- e) Electives from advanced undergraduate curricula at Reykjavík University's School of Science and Engineering, i.e. courses which are especially defined as being admissible as graduate courses, may earn students enrolled for Master's studies up to 18 ECTS credits as part of their Master's studies. Such electives or comparable study components shall, however, not have constituted a part of students' previous undergraduate studies (exemption see Article 6(f)). The Graduate Studies Council shall decide whether a course which a student wishes to have evaluated as part of his Master's studies is comparable in substance to a study component of a student's undergraduate studies. Other undergraduate courses or undergraduate courses chosen from other Schools within Reykjavik University are generally not admissible, although a student may apply to have such courses evaluated. Credits cannot be earned for courses from the undergraduate curricula of other universities. A list of possible electives from the undergraduate curriculum shall be published in the course catalogue for each MSc programme.

- f) Students who have completed a bachelors degree of more than 180 ECTS may apply to have up to 30 ECTS of the credits taken in their last year of undergraduate study evaluated as part of their graduate studies. They may also apply to have up to 18 ECTS of elective undergraduate courses taken as a part of their Masters programme at Reykjavik University's School of Science and Engineering evaluated as part of their graduate studies. Each Department of the School of Science and Engineering may set specific rules regarding this type of evaluation.
- g) In no case may the total amount of undergraduate credits evaluated as part of a Masters programme exceed 30 ECTS.
- h) In order to graduate from Reykjavik University, a student shall have taken at least 50% of the total credits earned within his study programme at Reykjavik University.

Article 7 Weight of Individual Study Components

The required core courses for each study programme shall be clearly defined in the course catalogue. A minimum $\frac{2}{3}$ of the course-credits (excluding credits for the Master's thesis) earned by a student enrolled in a MSc programme at the School of Science and Engineering shall come from science and engineering subjects. A student may earn up to $\frac{1}{3}$ of the requisite credits from selected courses within other academic disciplines. A list of possible electives from the curricula of the Schools of Science and Engineering and other Schools at Reykjavik University shall be published in the course catalogue for the MSc programme.

Courses offered within the Reykjavik University School of Science and Engineering shall generally be regarded as science and engineering subjects unless otherwise stated. The Graduate Studies Council determines whether courses offered by other Schools within Reykjavik University or other domestic or foreign universities count as science and engineering subjects as defined above.

All students enrolled in a MSc programme shall submit a Master's thesis designed to earn either 30 or 60 ECTS credits or, as an exemption, 90 ECTS credits, cf. rules on Master's theses in Article 15. In all other respects, the composition of studies shall be in accordance with the School's curriculum as published in the course catalogue.

Article 8 Course Options

The Department Heads shall, prior to February 1st each year, recommend to the Director of Graduate Studies the courses to be offered over the next two academic years. The Department Heads shall prepare their proposals in consultation with members of the faculty. The Director of Graduate Studies shall, prior to March 1st each year, decide what courses shall be offered during the period. In their proposals, the Department Heads shall recommend a total of at least 4 courses to be offered each semester within each Master's programme. Course descriptions with information on learning outcomes, teaching methods, evaluation methods and other arrangements shall be available at the same time. Electives and courses shall be offered with a view to making available to students suitable choices within their fields of specialization as referred to in the Appendix to these Rules.

The School shall not be bound to teach an elective course if fewer than 10 students have registered for it at the end of the registration period. The School may, however, teach elective courses and seminars for which fewer students have registered. The Director of Graduate Studies makes decisions to that effect having consulted the Department Heads involved. Decisions on elective courses to be offered during each semester shall be made no later than 6 weeks before the beginning of the semester. Due to unforeseen circumstances, the Director of Graduate Studies may decide to cancel a course. Elective courses may be offered either once every academic year or once every other academic year; however, particular courses may be offered every semester or at longer intervals. It shall be made clear in the course catalogue at which intervals each course is offered.

Article 9 Study Plans

A student who has been admitted to the Master's programme shall, no later than 8 weeks before studies are due to commence, select courses. Before the end of the first semester the student shall submit a comprehensive study plan. Detailed study plans shall accompany requests for evaluation of

previous studies to the Graduate Studies Council if applicable. Students shall inform the Graduate Studies Council of their decisions on the subject matter of the Master's thesis and the supervisor's approval at the end of the first year of study. Students shall be responsible for their selections and decisions concerning the progress of their studies.

Article 10 Study Progress

Students shall complete their Master's studies no later than four years after their commencement, unless the Graduate Studies Council has permitted a slower progress or granted a leave of absence from the studies. Only in exceptional cases can such extensions be granted for periods longer than one year.

Article 11 Minimum Grade

The minimum passing grade in the Master's programme is 6.0 in all courses and assignments as provided for in Article 6. This requirement shall generally also apply to any previous studies evaluated as part of the Master's programme.

Article 12 Teaching and Assessment

Each ECTS course credit in the Master's programme at the School of Science and Engineering will often equal 8-10 hours of teaching, thus giving 48-60 hours of teaching for a 6 ECTS-credit course and 64-80 hours of teaching for a 8 ECTS credit course. It is generally accepted that one ECTS credit at university level corresponds to a total student workload of 25-30 hours. This may be used as a guideline in order to estimate student workload outside teaching hours and the total workload of each course.

The content and the execution of courses in the different MSc programmes are under the control of a Department that uses the course as a mandatory part of its programme or as a highly recommended elective.

Courses are generally under the supervision of faculty members as decided upon by the relevant Department Head. However, the Department Head may employ part-time teachers to actually teach part or whole courses. Teachers in the MSc programme shall have a Master's degree, a comparable degree or higher academic qualifications.

Courses shall comprise lectures/seminars, projects and laboratory work as decided upon by the supervising faculty member at each time. The supervising faculty member shall decide on the manner of performance evaluation, including whether written or oral examinations shall be given, and whether a course shall, in part or in its entirety, be completed by submitting a project, term paper or presentation. In other respects, Reykjavik University's rules on examinations and assessment shall apply.

The Graduate Studies Council shall determine the number of credits to be awarded for each course. Elective courses at the School of Science and Engineering shall generally earn a student 6 or 8 ECTS credits. The Council may, upon a proposal by the faculty member supervising a particular course, permit fewer or more credits to be awarded for a single course.

Article 13 Studies in Student Exchange Programmes

Students can earn up to 60 ECTS credits in their Master's studies in engineering at foreign universities on the basis of student exchange programmes in which the Reykjavik University School of Science and Engineering participates. A student planning to study abroad as envisaged in this paragraph shall seek the approval of the Graduate Studies Council before commencing the studies. The performance of students in studies abroad shall be evaluated on the basis of the requirements of the university where the studies were conducted. The results of the evaluation shall be registered in their progress file as satisfactory or inadequate, without the award of numeric grades, and shall therefore not affect the students' average grade. As stated in art. 6 (h), a student shall have taken at least 50% of the total credits earned within his study programme at Reykjavik University in order to graduate from Reykjavik University.

Article 14 Evaluation of Prior Studies in other Study Programmes at RU or from Other Universities

If a student has finished courses at university level which he wishes to have evaluated as part of his Master's studies, he shall apply for this before commencing his Master's studies in RU's School of Science and Engineering. Students may earn up to 60 ECTS credits in their Master's studies through studies at an accredited university other than RU. Second cycle courses which contain equivalent subject matter and have been taken at a recognized university will generally be accredited as equivalent to applicable courses in a Master's programme at RU. The Graduate Studies Council decides which courses are equivalent. A student can have up to 12 ECTS credits of second cycle courses from other universities outside the field of engineering evaluated as electives. First cycle credits from other universities than RU shall not be evaluated as part of the Master's studies (see also Article 6). A student planning to take courses in other fields than engineering as envisaged in this paragraph shall seek the approval of the Graduate Studies Council before commencing the studies. The performance of students in studies evaluated as envisaged in this paragraph shall be registered in their progress file as satisfactory or inadequate, without the award of numeric grades, and shall therefore not affect the students' average grade. In order to graduate from Reykjavik University, a student shall have taken at least 50% of the total credits earned within his study programme at Reykjavik University.

Article 15 Master's Thesis

Students shall work on a thesis designed to earn 30 ECTS credits during their final semester in the Master's programme or a thesis earning 60 ECTS credits during the last two semesters or, as an exemption, a thesis earning 90 ECTS credits during the last three semesters. See art. 12 on workload for ECTS credits.

The student can organize the work on a Master's thesis over a longer period of time if appropriate and scheduled in the student's study plan. The Graduate Study Council shall issue rules in further detail concerning the requirements to be made on MSc theses, the scope of the projects, deadlines and accompanying documents.

A thesis earning 30 ECTS credits

All students conducting graduate Master's studies in engineering and related fields of specialization at the Reykjavik University School of Science and Engineering shall submit a Master's thesis designed to earn at least 30 ECTS credits during their final semester. This thesis shall fulfil the following requirements:

- Its subject shall have bearing on the relevant field of engineering and related fields and/or address research questions in those fields, as well as questions coming under the sphere of other disciplines.
- Its preparation shall involve academic use of relevant sources, primary or secondary, as appropriate to the subject.
- The thesis shall attain the goals set by the student as approved by the supervisor before the thesis work commenced. The goals shall be clearly stated in the introduction to the thesis.

A thesis earning 60 ECTS credits

A student conducting Master's studies who has been granted approval by the supervising faculty member may apply to the Department Head of the programme to be allowed to submit a Master's thesis designed to earn 60 ECTS credits instead of a thesis earning 30 ECTS credits. The thesis shall fulfil the following requirements:

- Its subject shall have bearing on relevant fields of engineering and related fields and/or address research questions in those fields, as well as questions coming under the sphere of other disciplines. The thesis shall be the student's own intellectual exploration, making a notable and independent contribution to the field or fields concerned.
- The thesis shall involve a test of a hypothesis made by the student in response to a research question forming its foundation.
- Original and derived sources shall be used to support or refute the student's hypothetical reply to

his or her research question.

- The scope and standard of the thesis shall be such that it could obviously lead to a publishable, peer-reviewed paper.

A thesis earning 90 ECTS credits

In exceptional cases, a student conducting Master's studies who has been granted approval by the supervising faculty member may apply to the Graduate Studies Council to be allowed to submit a Master's thesis designed to earn 90 ECTS credits instead of a thesis earning 30 or 60 ECTS credits. The thesis shall fulfil the same general requirements as a 60 ECTS credit thesis except that the handling of the subject matter shall involve work corresponding to workload accepted as 90 ECTS credits (see art. 12). An exemption to submit a 90 ECTS credit thesis shall mainly be granted to students graduating with a MSc degree in a relevant field of specialization rather than MSc in engineering.

A faculty member shall in all cases act as supervisor to each Master's thesis. If applicable, there can be two supervisors; a faculty member and an external specialist in the subject area of the thesis. The supervisors shall have a Master's degree or comparable academic qualifications, or a higher academic degree. The supervisor/-s shall evaluate the thesis together with an examiner appointed by the Director of Graduate Studies. They shall also submit the candidate to an oral examination on the thesis in an open forum. A grade shall be awarded for the thesis on the same scale as for courses taken at the School of Science and Engineering.

The Graduate Studies Council shall issue further rules concerning Master's theses, their submission, oral examinations on their subject matter and grading.

Article 16 Graduate Studies Council

The Master's programmes in engineering are managed by a Director of Graduate Studies and a Graduate Studies Council appointed by the Dean. The Director acts on behalf of the Dean and is in this capacity responsible for the programmes. The Director chairs the Graduate Studies Council and is responsible for implementing the Council's decisions.

The principal function of the Graduate Studies Council is to:

- a) Work on curriculum development and structure, for instance through collaboration with universities, research institutions and industry.
- b) Make suggestions as to the organization and availability of courses and teaching staff.
- c) Process applications for exceptions and evaluation of prior study as provided for in these Rules.
- d) Issue further rules on Master's studies, such as regarding the presentation of Master's theses, etc.
- e) Oversee the organization of the Master's programmes, for instance through proposals to the Director concerning the hiring of academic staff and collaboration with other RU Schools on elective courses, etc.
- f) Make other necessary proposals and suggestions as provided for in these Rules.

The Dean may appoint an Advisory Board for each discipline to work with the Graduate Studies Council. Each Advisory Board shall consist of both faculty members and outside specialists in the relevant field. The Graduate Studies Council shall formulate procedures for the Advisory Boards' work.

Appendix I:

MSc Programmes in Reykjavík University School of Science and Engineering – SSE

Department of Civil Engineering

- MSc in Civil Engineering, with specialization in
 - Concrete Technology
 - Construction Management
 - Structural Design
 - Transport and Urban Planning
- MSc in Construction Management
- MSc in Urban Planning and Transport

Department of Mechanical and Electrical Engineering

- MSc in Mechanical Engineering
- MSc in Electrical Engineering
- MSc in Sustainable Energy - REYST

Department of Financial Engineering and Management

- MSc in Decision Engineering
- MSc in Engineering Management
- MSc in Financial Engineering

Department of Biomedical Engineering

- MSc in Biomedical Engineering
- MSc in Engineering Bioscience

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