

*Course syllabus*

# Examensarbete i numerisk analys Degree Project in Numerical Analysis

**FMNM01, 30 credits, A (Second Cycle)**

**Valid for:** 2023/24

**Faculty:** Faculty of Engineering, LTH

**Decided by:** Faculty Board for Education

**Date of Decision:** 2018-03-22

## General Information

**Elective for:** D5, E5, F5, I5, Pi5

## Aim

The aim of the degree project is for the student to develop and demonstrate the requisite knowledge and skills to work independently as an engineer.

## Learning outcomes

### *Knowledge and understanding*

For a Pass on the degree project, the student shall

- demonstrate in-depth knowledge in the chosen field of engineering.

### *Competences and skills*

For a Pass on the degree project, the student shall

- demonstrate the ability to identify, formulate and handle complex issues from a holistic perspective and in a critical, autonomous and creative manner,
- demonstrate the ability to be actively engaged in research and development and thereby contribute to the advancement of knowledge,
- demonstrate the ability to plan and execute advanced assignments within given limits using scientific methods conducive to engineering practice,
- demonstrate the ability to integrate the knowledge acquired in key qualifying courses within the programme of study in a critical and systematic manner,
- demonstrate the ability to clearly present and discuss his/her conclusions and arguments behind them, orally and in writing, in national and international

contexts, and

- be able to independently identify and search for various sources of information, evaluate the relevance of this information to the problem in question and reference correctly.

#### *Judgement and approach*

For a Pass on the degree project, the student shall

- demonstrate the ability to assess his/her own degree project and those of other students with due regard to relevant scientific, social and ethical aspects.

## Contents

The degree project is an independent project. It is to be executed individually or in pairs.

The degree project is to include the following assessed components:

- a document describing the goals of the degree project
- a written report in Swedish or English with a summary in English
- a separate summary which is aimed at a popular science readership
- oral presentation of the degree project at a public seminar at the Faculty of Engineering
- an oral and written critical review of another student's degree project at a public seminar where it is presented.

The document describing the goals of the degree project is to be written at an early stage and must be approved by all supervisors and the examiner. It is to include a description of the problem to solve, the disciplinary foundation and proven experience on which the project is to be based, the main sources of information, and the project's expected contribution to the advancement of knowledge. The document is also to include a general description of the approach, choice of method, resource requirements and time needed. The contents of the document are to be gradually integrated in the written report.

The written report is to describe the degree project and its findings. If two students have collaborated on the project, the contribution of each student must be clearly discernible.

The written report is to be made available in a form suitable for review at least one week before the seminar, which is to be timetabled at some point between 15 August and the Monday of Midsummer week with the exception of the period 22 December - 6 January.

The oral critical review is to be based on a fellow student's written report when it is presented at a public seminar. The review is to be documented in writing before the seminar. The author's degree project should be at advanced level. One degree project can be reviewed by more than one student.

## Examination details

**Grading scale:** UG - (U,G) - (Fail, Pass)

**Assessment:** Written and oral examination. The assessed components are to demonstrate that the student has attained the learning outcomes. For a pass on the degree project, the student must have passed all assessed components within 12 months, unless there are valid reasons. The report is a public document. The assessment may not be based on classified information.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

# Admission

## Admission requirements:

Students admitted to an MSc in Engineering programme of 300 credits may commence work on the degree project when they have passed 240 credits in completed courses within the programme. In addition, the passed credits must include

- at least 30 second-cycle credits in completed courses
- all the compulsory courses within the basic block of the programme

In addition, the student must have sufficient knowledge in the subject area of the degree project, which is approved by the examiner before the project begins.

Students admitted to an MSc in Engineering programme in Risk Management and Safety Engineering must also have passed one of the courses VBR171 Risk Management Processes or VBRN50 Risk Management Processes in order to commence the degree project.

## Reading list

- The course literature and other teaching material that is to be used is to be approved by the supervisor with due consideration taken of the nature of the degree project assignment.

## Contact and other information

**Examiner:** The examiner must be a member of academic staff at Lund University who holds a PhD, and be appointed by the head of department.

**Course homepage:** <https://canvas.education.lu.se/courses/20393>

**Further information:** One or several supervisors shall be appointed for each degree project. At least one of the supervisors (the principal supervisor) must be an employee of Lund University and hold at least a degree of licentiate or the equivalent. In addition to the principal supervisor, assistant supervisors may be appointed. The supervisors will provide continuous supervision throughout the work on the project and are to ensure that, among other things, it is possible for the student to complete the project within a period of 20 weeks of full-time study. The student can only request supervision for a period of no more than 12 months.

The student is responsible for registering his or her passed degree project in LUP Student Papers. The degree project is then approved in LUP by the department. The department is responsible for filing the report.

More information is available at <https://www.student.lth.se/english/masters-students/degree-project/>.