



LUNDS UNIVERSITET
Lunds Tekniska Högskola

Course syllabus

Fördjupningskurs i valt område av matematiken

Advanced Course in a Selected Area of Mathematics

FMAN90, 7,5 credits, A (Second Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED F/Pi

Date of Decision: 2023-04-18

General Information

Elective for: D4, F4, Pi4

Language of instruction: The course will be given in English on demand

Aim

The aim of the course is to give the engineering student who is interested in mathematics the opportunity to extend his or her knowledge into a branch of mathematics relevant for applications or modern research.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- be able to demonstrate an in-depth understanding of a specific field within mathematics.

Competences and skills

For a passing grade the student must

- be able to deal independently with problems within the field concerned
- be able to use new tools from the course to efficiently solve problems from previous courses
- both orally and in writing be able to communicate advanced mathematical arguments within the scope of the course.

Judgement and approach

For a passing grade the student must

- be able to describe concepts and tools from previous courses in mathematics in a more mature manner than previously, and from new perspectives
- be able to demonstrate the ability to tackle new issues related to the course.

Contents

Varies, depending on the subject. The theme for the course during the spring semester year N, and information about required prior knowledge, will be published on the course web page in March year N-1.

Examples of possible themes are **Advanced Complex Analysis** (continuation of the course Analytic functions), **Geometry and computer algebra**, **Integral equations**, **Spectral theory and Graph theory**.

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)

Assessment: Written and/or oral examination as decided by the examiner. Assignments may occur. Information about this will be available when the students at LTH must decide whether to take the course.

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

Assumed prior knowledge: Varies, depending on the subject.

The number of participants is limited to: No

Reading list

- The choice of course literature depends on which theme is treated. Information about which literature will be used during the upcoming spring semester will be published on <http://www.maths.lth.se/course/advmathcourse/> by the start of the academic year.

Contact and other information

Director of studies: Anders Holst, studierektor@math.lth.se

Course administrator: Studerandeexpeditionen, expedition@math.lth.se

Teacher: Erik Martens, Erik.Martens@math.lth.se

Course homepage: <https://canvas.education.lu.se/courses/20324>

Further information: The projected theme for the spring of 2024 is mathematical neuroscience/physiology.