

# Project - Applied Mathematics

Programme course

12 credits

Projektkurs i tillämpad matematik, CDIO

TATA62

Valid from: 2017 Spring semester

**Determined by**

Board of Studies for Electrical  
Engineering, Physics and Mathematics

**Date determined**

2017-01-25

## Main field of study

Mathematics, Applied Mathematics

## Course level

Second cycle

## Advancement level

A1X

## Course offered for

- Applied Physics and Electrical Engineering, M Sc in Engineering
- Mathematics, Master's programme
- Applied Physics and Electrical Engineering - International, M Sc in Engineering

## Specific information

The Entrepreneurship part overlap with other CDIO courses and cannot be included more than once in a degree.

Exchange students may apply for the course after arrival to the university but before it starts. The international officer for exchange studies must be contacted before applying.

## Entry requirements

Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

## Prerequisites

The mandatory mathematics courses on the Applied Physics and Electrical Engineering programme. The course offers various projects, and depending on the project chosen additional prerequisites may be required. Knowledge about the LIPS project model

## Intended learning outcomes

The project work shall be carried through in an industrial professional manner, and it shall develop and solidify the participants' competence in the following areas:

- Analysing and structuring problems
- Seeking out and assimilating supplementary knowledge
- Writing and follow-up of project plans and time plans
- Actively contributing to the project group functioning well
- Applying knowledge from previous courses
- Taking initiatives and finding creative solutions
- Presenting results in writing and orally
- Potential and limitations of using mathematical modeling as a real-world problem solving method

The result of the project work shall:

- Maintain high technical standards, and be based on modern knowledge and methods in applied mathematics
- Be documented with a project plan, a time plan, and a technical report
- Be presented orally
- Be followed up in a project reflection document
- Fulfil the requirement specification

A purpose for the course is also for the students to acquire knowledge and abilities within the general area of entrepreneurship, with particular focus on business planning for new ventures. After the course, students should be able to:

- account for models that describe what it takes for a new venture to have a stable basis for further development and to assess the level of development of ventures using such models; and
- account for the information and analyses needed to evaluate a development project from a business point of view and have the ability to collect and analyse relevant information for the purpose.

## Course content

The projects vary from one year to the other. They are based on knowledge from previous courses. For example, one project might be to model a medieval trebuchet mathematically, and the product could be a computer program for simulation.

## Teaching and working methods

One lecture for presenting the project, and possibly some basic theory. The project group shall consist of at least four students. Each group is assigned a supervisor to support its work. Before the project work is started, the project group shall negotiate a requirement specification with the customer, and write a project plan and a time plan for the project. The project shall be carried out according to the LIPS project model. The project documents shall adhere to the templates that are part of the LIPS model.

The course runs over the entire autumn semester.

## Examination

UPG1	Entrepreneurship assignments	3 credits	U, G
PRA1	Written and oral presentation of the project	9 credits	U, G

The project work will be judged by the fulfilment of the aims of the course. The following three items are each graded by pass/fail: written documentation, oral presentation, and LIPS documents (including at least project plan, time plan, and a project reflection document). For a passing grade on the whole project, it is required that all three items are approved, and that the aims of the course are fulfilled.

Grades are given as 'Fail' or 'Pass'.

## Grades

Two-grade scale, U, G

## Department

Matematiska institutionen

## Director of Studies or equivalent

Jesper Thorén

## Examiner

Danyo Danev

## Course website and other links

[www.mai.liu.se/und/kurser/index-amne-tm.html](http://www.mai.liu.se/und/kurser/index-amne-tm.html)

## Education components

Preliminary scheduled hours: 20 h

Recommended self-study hours: 300 h

## Course literature

### **Additional literature**

### **Compendia**

### **Other**

Previous course literature and additional literature depending on the project

## Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at [http://stydokument.liu.se/Regelsamling/Innehall/Utbildning\\_pa\\_grund-\\_och\\_avancerad\\_niva](http://stydokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva).