

# Programming with Applications in Engineering

Programme course

6 credits

Problemlösning och programmering

TDDD44

Valid from: 2017 Spring semester

**Determined by**

Board of Studies for Mechanical  
Engineering and Design

**Date determined**

2017-01-25

**Offered for the last time**

Autumn semester 2018

## Main field of study

Computer Science and Engineering

## Course level

First cycle

## Advancement level

G1X

## Course offered for

- Energy - Environment - Management, M Sc in Engineering

## 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

Ada: No programming knowledge necessary. Basic mathematics from Swedish gymnasium. MatLab: Parts of "Matematisk grundkurs" and "Linjär algebra med geometri". These courses are given in parallel with this course.

## Intended learning outcomes

Ada: Basic knowledge of imperative programming, e.g. in Ada. Experience of working in a minor programming project.

MatLab: Understanding and using imperative programming constructs in MatLab. Increased understanding of concepts addressed in the courses "Matematisk grundkurs" and "Linjär algebra med geometri".

## Course content

Using system software such as compilers, linkers and text editors. Specifically  
Ada: language elements, data types, declarations, expressions, statements, sub programs, input/output, recursion, program structure, packages. Data structures such as arrays, records and files. A minor project assignment. Specifically  
MatLab: language elements, expressions, statements, sub programs, input/output (textually and graphically), recursion. Data structures such as vectors and matrices. The MatLab tool in general and the basic built-in functions related to algebra.

## Teaching and working methods

The course consists of lectures and laborative exercises.

## Examination

UPG2	Optional lab assignment	0 credits	U, G
LAB4	Laboratory work in Matlab	2.5 credits	U, G
LAB2	Laboratory work in ADA	2.5 credits	U, G
DAT2	Computer examination	1 credits	U, 3, 4, 5

## Grades

Four-grade scale, LiU, U, 3, 4, 5

## Other information

Supplementary courses: Programming

## Department

Institutionen för datavetenskap

## Director of Studies or equivalent

Ahmed Rezine

## Examiner

Torbjörn Jonsson

## Course website and other links

<http://www.ida.liu.se/~TDDD44>

## Education components

Preliminary scheduled hours: 88 h

Recommended self-study hours: 72 h

## Course literature

Se kurshemsidan för rekommendationer.

## 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).