

Introduction in Matlab

Programme course

2 credits

Introduktionskurs i Matlab

TSRT04

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

No Main Field of Study

Course level

First cycle

Advancement level

G1X

Course offered for

- Computer Science and Engineering, M Sc in Engineering
- Biomedical Engineering, M Sc in Engineering
- Chemical Analysis Engineering, B Sc in Engineering
- Computer Science and Software Engineering, M Sc in Engineering
- Information Technology, M Sc in Engineering
- Applied Physics and Electrical Engineering, M Sc in Engineering
- Engineering Electronics, B Sc in Engineering
- Physics, Bachelor's Programme
- Applied Physics and Electrical Engineering - International, M Sc in Engineering
- Computer Engineering, B 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

Linear algebra, Programming

Intended learning outcomes

MATLAB is a software for scientific computations that is used internationally by many engineers. The course intends to give a basic knowledge of MATLAB and practical experience of working with the software. Particular focus is put on the ability to perform basic computations and simulations, as well as visualising simulation results. The course can both be seen as a preparation to a large number of university courses where Matlab is used, and as a possibility to learn a powerful engineering software. After completing this course, the student is expected to be able to:

- use Matlab as a calculator both for scalars and matrices.
- use elementary functions and define variables.
- construct simple scripts and functions.
- use control structures (if-statements, for- and while-loops) in simple examples.
- visualise results of computations and data sets by self-explaining graphics.
- use the help system to learn new functions.

Course content

Interactive computations. Introduction to programming in MATLAB, using elementary methods. Advantages in documentation and comments to code. Plots and visualisation of computational results. Numerical calculations in linear algebra, (e.g. to solve linear equation systems). Solving basic engineering problems by dividing these into subproblems.

Teaching and working methods

The course consists of lectures and computer exercises.

Examination

LABA	Computer exercise	2 credits	U, G
------	-------------------	-----------	------

Computer-based lab sessions, consisting of a smaller plot assignment and a slightly larger project assignment. These are solved in groups of two students and presented orally. Individual quiz and oral discussion of the quiz. Reexaminations is usually by following the lab course the next time the course is given (HT1, VT1 or VT2)

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

Grades

Two-grade scale, U, G

Department

Institutionen för systemteknik

Director of Studies or equivalent

Klas Nordberg

Examiner

Emil Björnson

Course website and other links

<http://www.commsys.isy.liu.se/sv/student/kurser/TSRTo4>

Education components

Preliminary scheduled hours: 16 h

Recommended self-study hours: 37 h

Course literature

Additional literature

Compendia

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.