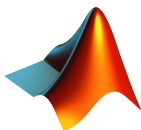


MatLab Programming Fundamentals

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Course objectives

The aim of the course is to acquire basics knowledge and skills of students the MatLab program. At the end of the course students will be able to use MatLab for their own work and will be ready to deepen their programming skills in MatLab.

MatLab Programming Fundamentals

time requirements: 0p+2c

credits: 4

exercises: Monday 10:40-12:15; 12:30-14:05 (B-PC2, Tunák M.)
Tuesday 08:50-10:25; 10:40-12:15 (B-PC2, Tunák M.)

consultation: Wednesday 10:40-12:15 (E-KHT)

Requirements on student/graded credit

- 1 participation in exercises (max. 3 absences)
- 2 elaboration of semester work (after approval of the semester work, you can attend a practical demonstration)
- 3 practical demonstration of acquired skills (there will be 1-2 examples to solve; elaboration time 1 hour; you can use any materials ...)

Content

IS/STAG Syllabus

1. Getting started with Matlab. Working environment, windows, paths, basic commands, variables. Loading, saving and information about variables. Help.
2. Mathematics with vectors and matrices. Creating vectors and matrices. Indexing. Special matrices. Matrix operations. Element by element operations. Relational operations, logical operations, examples and tricks.
3. Control flow. Loops, conditional statements, examples.
4. Script m-files, Function m-files.
5. Visualisation. Two-dimensional graphics. Three-dimensional graphics.
6. Graphical user interface.
- 7.-10. Statistics and Machine Learning Toolbox. Basics of statistical data processing, exploratory data analysis, descriptive statistics, data visualisation, hypothesis testing, confidence intervals, regression analysis, control charts.
- 11.-13. Solution of practical problems in textile and industrial engineering.

Literature

Recommended

MathWorks. *Getting Started with MATLAB*. [Online]. Dostupné z:

<https://www.mathworks.com/help/matlab/getting-started-with-matlab.html>

Study materials

<http://elearning.tul.cz>

Installation

<http://liane.tul.cz/cz/software/MATLAB>