Course code: MATLAB1

The course is intended for all those who want to learn about the environment and the programming language MATLAB. You will learn to use basic functions, vectors, and matrices, as well as more complex features such as graphing, working with files, or designing graphical applications.

Required skills:
- The course assumes basic programming experience in any language

Teaching methods:
- Professional explanation with practical samples and examples.

Teaching materials:
- Powerpoint handouts and module printouts.

Course syllabus:
User environment of Matlab

Matlab as a calculator
- Basic functions
- More advanced functions (sinus, amplification, factorial, ...)

Counting with vectors and matrices
- Solution of linear, quadratic and cubic equations
- Basic matrix operations
- Solution of a system of linear equations
- Fraction decomposition

M-files
- Creating scripts
- Cycles and conditions
- Design features
- Subfunctions
- Error suppression
- Stepping
- Code optimization tools

Drawing charts
- Rendering of 2D charts
- Working with handles of graphic objects
- Rendering 3D charts

Work with text strings
- Search for text
- Replacing text
- Regular expressions

Data types struct and cell

Working with files
- Import and export of variables
- Reading and writing to a text file
- Reading and writing to a binary file
- Image editing
- Loading an xml file
- Load json file

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Design of graphic applications
- Introducing the Guide
- Introducing Appdesigner
- Creating a graphical application

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