

Course Syllabus

1. Course number and name: 020MATNI4 Matlab
2. Credits and contact hours: 2 ECTS credits, 1x1:15 course hours
3. Instructor's or course coordinator's name: Chantal Hajjar
4. Text book, title, author, and year
 - a. other supplemental materials:
Professor textbook and course material
5. Specific course information
 - a. catalog description:
This course provides an introduction to Matlab. Students will learn to use the Matlab computing environment and some popular toolboxes in order to solve mathematical problems. Topics include: basic commands, arithmetic operations, integrated mathematical functions, vector and matrix operations, symbolic calculations, scripts and user-defined functions, 2D and 3D graphics, and simple models in Simulink.
 - b. prerequisites : 020IN1NI2 Programming 1, 020ANGNI1 General Analysis
 - c. Required/Elective/Selected Elective: Required
6. Specific goals for the course
 - a. specific outcomes of instruction
 - Use integrated functions to perform mathematical operations
 - Apply matrix calculations to solve a system of linear equations
 - Create 2D or 3D data plots
 - Translate mathematical methods to Matlab code
 - Employ Symbolic toolbox to solve Calculus and Linear algebra problems
 - Develop Matlab programs to implement numerical methods
 - Solve ordinary differential equation using Simulink
 - Model a simple mechanical system using Simulink
 - b. KPIs addressed by the course.

KPI	a1	k1	k2	k3
Covered	x	x	x	x
Assessed	x		x	x
Give Feedback	x		x	x

7. Topics and approximate lecture hours :

- Introduction to the Matlab environment and toolboxes, basic Matlab commands (1 Lecture)
- Numerical variables, data types, arithmetic operators and expressions, integrated mathematical functions (1 lecture)
- Symbolic toolbox – application to Calculus (2 lectures)
- Symbolic toolbox – application to Linear Algebra (2 lectures)
- Matrix operations (2 Lectures)
- Graphics (1 Lecture)
- Basic programming - scripts, control structures, data input and output, functions (2 lectures)
- Simple models in Simulink (3 Lectures)