Name of the course: ADVANCED PROGRAMMING IN MATLAB AND SIMULINK

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Duration of the course: 20 hours

Language: Italian; if requested by foreign students, the course will be held in English.

Aims of the course: the course provides elements of advanced programming in MATLAB and Simulink environment, for typical engineering applications such as regression, simulation of dynamical systems, optimization. A part of the course will be devoted to the realization of plots suitable to be included in scientific papers.

Teaching programme:

1. Object-oriented programming
2. Debug and profiling
3. Solution of ordinary differential equations and simulation of dynamical systems
4. Local and global optimization
5. Regression
6. Speed up the computation with MEX files
7. Graphics in MATLAB
8. Simulink simulation of custom models with S-functions
9. Manage the communication between MATLAB and Simulink

Exam modality:

Presentation of a MATLAB/Simulink project

Bibliography:

Notes by the teacher (in English), Mathworks documentation https://it.mathworks.com/help/