INSA INSTITUT NATIONAL DES SCIENCES APPLIQUÉES RENNES

Academic year 2024/2025

Courses offered by the programme

Génie Mécanique et Automatique (GMA)
Mechanical and Control Systems Engineering

Semester(s) :

Curricula are organized in groups of courses (Unités d'Enseignement (UE)), consisting of several courses (Eléments Constitutifs (EC)). An EC is a teaching module including lectures (cours magistraux (CM)), tutorials (travaux dirigés (TD)), laboratory work (travaux pratiques (TP)), projects (PR), conferences (CONF), personal work (TA) and possibly other pedagocial activities (DIV). Some internships (stages (ST)) are compulsory

Commonly used abbreviations
CM : Lectures
TD : Tutorials
TP : Laboratory Work
CONF : Conferences
TA : Personal Work
PR : Project
ST : Internship
DIV : Miscellaneous

Initiation Matlab	ESM05-MATLAB
Number of hours : 12.00 h	1.00 ECTS credit
CM : 2.00 h, TP : 10.00 h	
Reference Teacher(s) : PEDESSEAU Laurent	

Objectives :
- Transfer the basic pedagogical support needed for the use of Matlab code.
- Matrix calculation and also the use of Simulink applying to realistic problems
- Assimilate the basic concepts of “script” and “function”
- Be familiar with the method fft and also the “ode” method to solve various problems in materials science, solid state physics, flow mechanics, quantum mechanics, heat flux, electromagnetic, semiconductor.

Content :
Introduction, generalities, Matrix calculation, read and write in a file, Basic starting to solve problem with Simulink.

Bibliography :
- Kelly Bennett: MATLAB Applications for the Practical Engineer. InTech 2014.
- Wikibooks 2012: MATLAB Programming. http://en.wikibooks.org/wiki/MATLAB_Programming
- Subhas Chakravarty: Technology and Engineering Applications of Simulink. InTech 2012

Requirements :
Algebra, Matrix calculation, numerical analysis, simulation.

Organisation :
10 h of training + 2h of amphitheater

Evaluation :
Exam 1h + proceeding of the training.

Target :