Structures/Materials Project

Course code: ASM2	ECTS Credits: 4.5

Department	: MSISI	**Lectures**	:
Lecturers	: G. Hénaff, C.Nadot	**Tutorials**	:
Year of study	: 1st year	**Laboratory sessions**	:
Semester	: 2nd semester	**Project**	: 18h00
Assessment method(s)	: 1 project	**Home works**	:
Language of instruction	: English	**Total hours**	: 18h00
Type of courses	: Compulsory		

Objective: The aim of the course is to learn how to use industrial Finite Element software (Abaqus) and apply the acquired knowledge to structures calculation for the control of a structure.

Prerequisites: 2nd year courses of structures mechanics (MDS3) and finite elements (MEF4)

Content: Study of the footbridge of a structure with beams and plates
- The structure being provided, the students have to construct the model of the structure, by making it simpler. They also have to determine the stresses on such simplified structure.
- Use of the ABAQUS software of calculation by finite element: students, working in pairs, will build a model and will calculate the displacements, the load and the stresses of each element of the structure.
- Visual display of the results with the Femgy software. Critical study of the results, and behaviour control of the structure.
- Calculus of the frequencies and Eigen modes of vibrations by finite element.
- X ray diffraction analysis of copper alloys. Comparison between experiments and simulation of diagrams. Observation of cold work materials texture.

Recommended reading: None