

Semester 3
Major High Temperature Materials (HTM)

Finite Elements modelling

Course code: AFE3

ECTS Credits: 2.5

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| Department | : MSISI | Lectures | : 15h00 |
| Lecturers | : J.Genée, V.Robin | Tutorials | : 15h00 |
| Year of study | : 2 nd year | Laboratory sessions | : |
| Semester | : 3 rd semester | Project | : |
| Assessment method(s) | : 1 written test | Home works | : |
| Language of instruction | : English | Total hours | : 30h00 |
| Type of courses | : Compulsory | | |

Objective: Understand the finite element method and the numerous techniques used in an industrial software

Prerequisites: course of finite element

Content:

1. Fundamentals
2. Mechanic Formulations (Balance equation)
3. Isoparametric elements, interpolation functions
4. Numerical integration of stiffness matrix
5. Condensation and superelements
6. Element selection and meshing errors
7. Assembly procedures and solution of linear algebraic equations

Recommended reading: J-F. Imbert, *Analyse des structures par éléments finis*, Cepadues

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