

Engineering Failure Analysis

Course code: AEF3

ECTS Credits: 1.5

Department	: MSISI	Lectures	: 6h00
Lecturers	: G. Hénaff, G. Saint-Martin (Turboméca) (guest speaker)	Tutorials	:
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	: 6h00
Type of courses	: Compulsory		

Objective: Overview of failure analysis, mechanical and metallurgical investigations, and fractography (context, methodology, tools, capabilities, knowledge, goals, etc.).

Prerequisites: Materials Science & Engineering, Mechanical Engineering, Fracture Mechanics

Content:

1. Framework of Failure Analysis

- Application Fields
- Technical Assistance
- Judicial Cases
- Other Frameworks

2. Methodology of Failure Analysis

- General Methods
- Actors and Organisation
- Preliminary Investigation
- Laboratory Study
- Check and Confrontation
- Write and Act

3. Mechanical and Metallurgical Investigation

- Methodological Aspects
- Required Knowledge
- Tools, Means and Ways

4. Fractography

- Methodological Aspects
- Material Science Bases
- Fracture Families (Static, Fatigue, Creep, Corrosion, etc.)
- How and Why

5. Cases Studies

- Varied Aeronautical Cases

Recommended reading: None

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