

## SEMESTER T1 GM\_SEMESTER 8

### Practical info

---

#### Location(s)

 Toulouse

# Advanced heat transfers and fluid flow



ECTS  
5 crédits



Hourly volume

## Introducing

---

### Objectives

At the end of this course, the student should have understood and will be able to explain the basics allowing to approach a phenomenon involving real (viscous) fluids. He will be able to tackle situations involving more or less complex heat and mass transfers.

The student will also be able to conduct a numerical simulation with Ansys Fluent code.

### Necessary prerequisites

---

Inviscid fluid dynamics (I3ICFT01 & Fluid Mechanics 1)

Introduction to heat transfer (I3ICFT01 & heat Transfer 1)

## Practical info

---

### Location(s)



Toulouse

## Materials, vibrations and advanced mechanical modeling



ECTS  
7 crédits



Hourly volume  
100h

### Introducing

---

#### Objectives

At the end of this module, the student will have understood and be able to explain how works a pre-stressed (or preloaded) mechanical system, basis of fracture mechanics and computations of vibrations and transient dynamics

The student will be able to identify mechanical systems that are preloaded, discuss with a specialist of fracture mechanics and carry out a simulation of vibrations and transient dynamics.

#### Necessary prerequisites

Basis on mechanical design, materials and vibrations

### Practical info

---

#### Location(s)

 Toulouse

## Research projects and sports



ECTS

6 crédits



Hourly volume

2h

## Introducing

---

### Objectives

The module aims at giving the students a first experience with research through a tutored project in teams (2 to 4 students).

At the end of the module, the student will :

- know how to conduct a bibliography search, synthesise and cite it, for a given scientific topic;
- communicate with rigor in English, orally or through written documents to highlight the research activity performed;
- perform a simple research action in a team organization to generate scientific propositions, then implement and finally assess them

### Necessary prerequisites

None

## Practical info

---

### Location(s)

 Toulouse

## Multidisciplinary industrial project



ECTS  
6 crédits



Hourly volume  
85h

## Introducing

---

### Objectives

At the end of this module, the student will have understood and be able to explain the main principles and definitions of quality management, the importance of health and safety at work, how to assess and prevent risks, eco-design and life-cycle analysis.

The student will be able to develop their capabilities in mechanical design in an industrial project.

### Necessary prerequisites

Bachelor in mechanical design

## Practical info

---

### Location(s)

 Toulouse

## French II



ECTS  
3 crédits



Hourly volume

## Practical info

---

### Location(s)



Toulouse

# Communication in organisations with LV2



ECTS

6 crédits



Hourly volume

## Introducing

### Objectives

Objectives:

At the end of this module, the student will have understood and be able to explain (main concepts):

- How to answer the demand of the civil society for technical and scientific information
- How to carry out critical analysis in order to give appropriate answers when questioned about such issues
- How to consider the circulation and content of information within the organizations in which they will be hired

The classes given in English will focus on the specific linguistic characteristics of the English used in scientific contexts in order for the students to understand and master them.

The students will also be made aware of the specificities of scientific English as relates to publications in his specific field of research.

Module L 2

The objectives, defined in reference to the CEFR for the 5 language activities, are specific for the language studied (Chinese, German, Spanish) and the level of the student.

They can be consulted on :

<https://moodle.insa-toulouse.fr/course/view.php?id=44>

In certain cases, students may be authorised to follow an English module instead of another language

### Necessary prerequisites

Necessary knowledge:

For classes in English : understanding of scientific English

## Practical info

### Location(s)



Toulouse

## Political sciences semestre 2



ECTS  
3 crédits



Hourly volume

## Practical info

---

### Location(s)



Toulouse



# Advanced heat transferts and fluid flow



ECTS  
5 crédits



Hourly volume

## Introducing

---

### Objectives

At the end of this course, the student should have understood and will be able to explain the basics allowing to approach a phenomenon involving real (viscous) fluids. He will be able to tackle situations involving more or less complex heat and mass transfers.

The student will also be able to conduct a numerical simulation with Ansys Fluent code.

### Necessary prerequisites

---

Inviscid fluid dynamics (I3ICFT01 & Fluid Mechanics 1)

Introduction to heat transfer (I3ICFT01 & heat Transfer 1)

## Practical info

---

### Location(s)



Toulouse

# Materials, vibrations and advanced mechanical modeling



ECTS  
7 crédits



Hourly volume  
100h

## Introducing

---

### Objectives

At the end of this module, the student will have understood and be able to explain how works a pre-stressed (or preloaded) mechanical system, basis of fracture mechanics and computations of vibrations and transient dynamics

The student will be able to identify mechanical systems that are preloaded, discuss with a specialist of fracture mechanics and carry out a simulation of vibrations and transient dynamics.

### Necessary prerequisites

Basis on mechanical design, materials and vibrations

## Practical info

---

### Location(s)

 Toulouse

## Multidisciplinary industrial project



ECTS  
6 crédits



Hourly volume  
85h

## Introducing

---

### Objectives

At the end of this module, the student will have understood and be able to explain the main principles and definitions of quality management, the importance of health and safety at work, how to assess and prevent risks, eco-design and life-cycle analysis.

The student will be able to develop their capabilities in mechanical design in an industrial project.

### Necessary prerequisites

Bachelor in mechanical design

## Practical info

---

### Location(s)

 Toulouse

## Research projects and sports



ECTS

6 crédits



Hourly volume

2h

## Introducing

---

### Objectives

The module aims at giving the students a first experience with research through a tutored project in teams (2 to 4 students).

At the end of the module, the student will :

- know how to conduct a bibliography search, synthesise and cite it, for a given scientific topic;
- communicate with rigor in English, orally or through written documents to highlight the research activity performed;
- perform a simple research action in a team organization to generate scientific propositions, then implement and finally assess them

### Necessary prerequisites

None

## Practical info

---

### Location(s)

 Toulouse

## Tutorat Spécifique GM S2 CT1

### Practical info

---

#### Location(s)

 Toulouse