



THE CORE COMPETENCIES FOR THE BACHELOR'S PROGRAMME

IN MECHANICAL, MATERIALS AND AEROSPACE ENGINEERING

1 – Diagnosis of mechanical systems to identify their strong/weak points and propose improvements

- 1-1 Knowledge of the conventions and rules in Mechanical Design; ability to read, understand and use technical documents.
- 1-2 Contribution to the definition of experimental tests and analysis of measurement results.
- 1-3 Identification of defects, failures and analysis of their causes.
- 1-4 Capability to compare and assess one mechanical system with respect to other similar systems.

2– Design and/or develop mechanical systems particularly in the aeronautical sector

- 2-1 Capability to find technological solutions or ways to improve a technological solution from the literature.
- 2-2 Know how to select materials for mechanical systems taking into account their functional constraints.
- 2-3 Pre-design and design of mechanical systems.
- 2-4 Know how to utilise common CAD software codes.
- 2-5 Propose technological solutions and integrate manufacturing constraints.
- 2-6 Knowledge of the main topics and technological challenges in the aeronautical sector.



3- Project work

- 3-1 Participate effectively in technical individual and team projects.
- 3-2 Define and follow technical specifications while considering financial constraints.
- 3-3 Define project schedules with validation of intermediate phases.
- 3-4 Contribute actively to team work.
- 3-5 Produce technical documents.
- 3-6 Present and defend a project [oral presentations and written reports].

4- Cooperate with colleagues from other Engineering specialities

- 4-1 Know how to use the standard Mathematical Tools in Engineering.
- 4-2 Acquire the fundamentals in Electrical Engineering.
- 4-3 Know how to apply the fundamentals in Thermodynamics and Energetics.
- 4-4 Ability to cooperate with multi-disciplinary teams and networks.

5 - Work in a multicultural environment and master French and English

- 5-1 Ability to communicate in French and English in a professional context.
- 5-2 Demonstrate sensitivity to cultural differences and adapt to various cultures.
- 5-3 Gain awareness of the legal issues associated with international cooperation.

6- Develop a personal and professional project

- 6-1 Establish a personal portfolio of professional experience and competencies.
- 6-2 Define objectives and strategies for one's career and personal evolutions.
- 6-3 Position companies and organisations in a socio-economic context.
- 6-4 Identify one's position in a hierarchical and professional environment.
- 6-5 Be aware of the main issues related to sustainable development, economic intelligence and security, particularly in the aeronautical sector.