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.