

# **Presentation of the Master's in Electromechanics**

## **1. Objectives**

The objective is to provide versatile training for engineers capable of analyzing, designing, and optimizing industrial systems operating in the fields of electrical and mechanical engineering. This training focuses on the essential concepts of mechanical engineering (materials science, computer-aided design, thermodynamics, fluid mechanics, machine elements, vibration dynamics, mechanical manufacturing, aeronautics, industrial production, etc.) and those of electrical engineering (measurement techniques, electrical and electronic circuits and components, electronics, automation, signals and their processing methods, modeling devices and functions and simulating their behavior on computers, system diagnostics, etc.).

As trained electromechanics, they are able to:

- Master and integrate all the technologies required for the design, production, testing, and maintenance of automated machines or applications.
- Design and select materials, manufacturing, and assembly techniques, and use computer-aided design and digital simulation.
- Develop the scientific and technical skills essential to the electromechanic profession, allowing them to think and act in accordance with industrial constraints and realities.
  - Acquire management skills to provide solutions, leverage research findings, and implement them within companies. This requires method, creativity, communication skills, and the ability to work in a team.
- Conduct specialized tests and inspections, and verify equipment compliance with specifications while complying with current standards.
  - Continuously update their knowledge of technological developments.
  - Record the results of tests, trials, and inspections in a report and define procedures.
- Analyze the causes of breakdowns and malfunctions and suggest improvements.
- Ensure the maintenance of machinery and electrical equipment.
- Participate in the preparation of specifications and technical files.
- Participate in the review of preliminary designs and projects.

## **2. Admission Requirements**

Entry into the program is specifically intended for students holding a bachelor's degree in electromechanics or industrial maintenance, as well as all specialties from another group of ST programs, subject to equivalence and approval from the training team.

## **3. Program Organization**

## Teaching Methods:

Courses are organized into lectures, tutorials, and practical work. The courses are organized into semester-based teaching units (TUs). Each teaching unit may include several elements called "subjects." Each TU is assessed in ECTS credits. An academic year represents 60 ECTS credits, with 30 credits per validated semester, or 120 ECTS for the Master's degree. Semester S4 is reserved for an internship or introductory research project, assessed by a dissertation and a defense.

## Course Content

The Master's program is divided into four semesters spread over two years.

### 1. Assessment of Knowledge

- The acquisition of knowledge and skills is assessed through regular, continuous assessment and practical tests combined with a final exam.
- There will be two exam sessions per year followed by a resit session for each.
- Each subject will be assessed at least once during the program, resulting in the awarding of a grade.
- Each subject will be assigned a weighting. The overall grade for a subject includes the final exam grade and the continuous assessment grade.
- A validated unit is capitalizable, meaning it is definitively acquired when the student has obtained a weighted average equal to or greater than 10 out of 20 by compensating the grades for each subject in the course. Completion of the course entails the acquisition of the corresponding European credits (ECTS).

• Attendance at all educational activities organized as part of the program is mandatory for tutorials and practical work.

### 4. Career Development

#### 1. Sectors of activity and types of jobs available:

- Production system design and installation manager
- Production and quality controller
- Production companies
- Electric power distribution and production sector
- Naval, chemical, petroleum, pharmaceutical, and agri-food industries
- Hydraulic installations
- New energy sectors
- Start-up or business creation
- Maintenance and technical sales companies
- Basic or applied research laboratories
- Design offices
- In public services (infrastructure, energy, environment, etc.)
- In education (secondary and higher education)

#### 1. Further studies

- Doctorate