

## MASTER 2 ELECTRONIC ENGINEERING AND ELECTRICAL ENGINEERING

This master program is exactly the same SEGE (Systèmes Electroniques et Génie Electrique) French master program operated by Polytech Nantes, University of Nantes, but the courses are given in English. The English class and the French class have the same exams.

### OBJECTIVES

With this research master, students will be specialists in the electronic systems or electrical systems. These systems are used for controlling, monitoring and interfacing functions and for information transformation and processing. Students will be able to design, to develop and to improve electronics or electrical systems, and able to work in team, and to prepare a PhD.

### METHOD OF ACCESS

Degree or diploma in a scientific or technical field equivalent to the first year of a master.



### TWO SPECIALTIES

#### Electronic systems:

- Signal processing
- High frequencies
- Remote sensing

#### Electrical systems:

- Electromagnetics
- Electrical machines
- Power electronics

### ORGANISATION

**The year of the program will consist of three main phases:**

- a-Scientific and theoretical studies (all the lectures are delivered in English).
- b-Research in a university lab or in a company.
- c-General European subjects: history, marketing, economics and scientific culture, and daily French language.

**The French master's Degree is awarded at the end of the year if the following conditions are met:**

- a-Successful completion of scientific and theoretical studies.
- b-Successful research in a university lab or in a company.
- c-Successful participation in general European subjects.

*Two sessions of exam are organized each year.*

**Tuition fee: 6500 euros (medical insurance included) which can be paid in two ways:** 1) Totally at the beginning of January of each year, or 2) 4500 euros at the beginning of January of each year, and 2000 euros at the beginning of July.

**Additionally,** it should be mentioned that, during the master program, there will be a **5 months internship**, in a laboratory or in a company. Each student will be paid at least **417.09 euros per month**. Therefore, he (she) will **receive at least 2085 euros for their internship**.

## PROGRAM

A detailed presentation of the program is available at: [www.polytech.univ-nantes.fr/master-sege/master.htm](http://www.polytech.univ-nantes.fr/master-sege/master.htm).

During the first semester, starting at the middle of September, and after a common period of courses, two options are proposed: electronic systems and electrical engineering.

**Four core courses (common to the two options) of 12 hours each, selected from the following five courses:**

- Modelling techniques
- Components for electronic systems
- Signal processing
- Electromagnetics
- Electro-mechanical conversion

### **For Electronic systems:**

Two courses of 15 hours each, chosen from the following, based on the research interests of the student and the laboratory.

- Electronic systems overview
- Radar systems
- Communications systems

Two courses that refine their interest, selected from the following 30-hour courses :

- Antenna techniques and array signal processing
- HF and optical devices and functions
- Propagation, diffraction and electromagnetic compatibility
- SoC technology and VLSI technology
- Architecture and CAD of circuits and systems

### **For Electrical systems:**

5 courses of 15 hours each:

- Modeling of electrical machines
- Modeling of electromagnetic systems
- Industrial electrothermics
- Components and tools for digital control
- Control methodology

The second semester is spent to a period of 20 weeks of research in a laboratory of universities or in a company.

[www.polytech.univ-nantes.fr](http://www.polytech.univ-nantes.fr)

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