

Parcours Electrical Engineering and Control Systems / CompSEE 2^e année

Présentation

Over the last 25 years, the global population using electricity has increased by 10 points, from 74 to 85%, while the per capita power consumption increased by 50%. This increasing demand for energy and the necessary fulfillment of environmental constraints are driving the development of renewable energies and renewed electrical systems and devices.

On one hand, the integration and use of intermittent energies require profound technological changes of power grids to ensure an optimized, secure and reliable production and distribution in any conditions.

On the other hand, electromagnetic devices are also subject to multiple constraints. Development of electric transportation systems (car, plane ...) impose the use of high-performant and energy-efficient on-board devices. These devices will be submitted to intense multi-physical solicitations (electromagnetic, mechanical and thermal). The rising of the Internet of Things (IoT), key element for the deployment of smartgrids, smarthomes and smartcities, requires energy recovery devices using several physical, storage elements as well as specific sensors and actuators.

In a scientific and industrial context engaged in the search for innovative solutions, it is vital for the modern electrical engineer to model and describe more finely the response of devices and systems, on several scales (from the geographical territory to the microscopic material scale). This program is therefore conceived as the convergence between three training areas: electromagnetic modeling and circuit theory, numerical computations, multi-scale and multi-physics studies of a wide range of systems and devices from transmission power grids to electrical actuators. The extensive training provides a multidisciplinary culture that allows students to acquire high-level scientific knowledge and skills for research and development (R & D) in electrical engineering, from the latest theories to their applications.

Admission

- ^d year of master's degree : The prospective student should have completed at least four full years of University studies (a first year of master's degree, bachelor or equivalent degree with 240 ECTS), have followed basic classes in Electrical engineering, prove an English proficiency with CEFR (B2), TOEFL (IBT 87-109), IELTS (5.5-6.5), TOEIC (785-945) or equivalent. Students coming from English-speaking countries or/and who had a University curriculum in English are considered proficient enough. If you don't have the opportunity to take the test in your home University, an English test is organized during the first week of the classes, to check the level of everyone.

Public continuing education : You are in charge of continuing education :

- if you resume your studies after 2 years of interruption of studies
- or if you followed training under the continuous training regime one of the previous 2 years
- or if you are an employee, job seeker, self-employed

If you do not have the diploma required to integrate the training, you can undertake a [validation of personal and professional achievements \(VAPP\)](#)

You want to apply and register?

Simply follow this [link](#) to get started

Infos pratiques :

- > Composante : UFR PHITEM (physique, ingénierie, terre, environnement, mécanique)

Contacts

Responsable pédagogique

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Programme

Master 2e année

Semestre 9

UE Power Systems Modeling and Analysis I	3 ECTS
UE Power Systems Modeling and Analysis II	3 ECTS
UE Optimization of Energy Systems	3 ECTS
UE Modeling and Methods for Electrical Circuits and Systems	3 ECTS
UE Optimization Methods for Components and Systems	3 ECTS
UE Theory and Computation of Electromagnetic Fields	6 ECTS
UE Advanced techniques for computational electromagnetics	6 ECTS
UE Research Project	3 ECTS

UE Anglais - Master 2 - Semestre 10	3 ECTS
UE FLE	3 ECTS
UE ETC	3 ECTS

Semestre 10

UE Humanities and engineering	3 ECTS
UE Internship	24 ECTS

1 option(s) au choix parmi 3