

Detailed Program Facts

ACADEMIC YEAR : Our full academic year runs from September to June

APPLICATION DEADLINE : Applications are opened from November 1st to April 31th

HOW TO APPLY : The application documents must be uploaded on the website : <https://aap-e2s.univ-pau.fr>

PROGRAM INTENSITY: Full-time

DURATION: 3 semesters (16 months)

CREDITS: 120 ECTS (of which 30 are validated from prior learning experience: 1st semester)

LANGUAGE: Fully taught in English

TUITION FEES: 3 000€ / semester
9 000€ for the master program

LEVEL OBTAINED: Master

HEAD OF THE MASTER PROGRAM:
Professor **Mathieu MORY**

LOCATION: ENSGTI is located in Pau, in the south-west of France, at the foot of the Pyrenees, near the Atlantic Ocean and the Spanish border. The "Université de Pau et des Pays de l'Adour" campus provides all the student's facilities : student's residence, sports facilities, associations, student unions, etc...



Admission requirements

ENGLISH LANGUAGE REQUIREMENTS

Minimum required score: CECRL B2 level in English

ACADEMIC REQUIREMENTS

Scientific Bachelor's degree with prerequisites, including strong basic knowledge in mathematics, physics, thermodynamics and heat transfers.

Possibility to follow these courses in the framework of ERASMUS Exchanges.

Contact

For any supplementary information or questions related to application, please contact: master.simos_ensgti@univ-pau.fr

MORE INFORMATION :

<https://ensgti.univ-pau.fr/master-simos>

<https://formation.univ-pau.fr/m-simos>

INTERNATIONAL WELCOME DESK :

<http://univ-pau.fr/en/welcome-desk>

Conception : Direction de la communication - Impression : Centre de reprographie - UPPA - Février 2020

Master's degree in Energy

SIMulation and Optimization of energy Systems (SIMOS)



<https://ensgti.univ-pau.fr/master-simos>



Overview

Due to the complexity of current industrial processes, the development and improvement of operations and energy efficiency is possible only with rigorous optimization methods. The International Master's SIMOS (SIMulation and Optimization of energy Systems) offers specialized training in the field of Energy and more specifically, the optimization of energy systems.

The SIMulation and Optimization of energy Systems (SIMOS) Master offers a 3 semester postgraduate program, aimed at providing a solid scientific background in order to innovate, design and operate systems for conversion, storage and distribution of energy in the context of sustainable development. This training is of high interest for students from around the world planning both an academic and an industrial career.

The master is fully taught in English and is hosted at ENSGTI (College of Sciences and Technologies for Energy and Environment, STEE, of the Université de Pau et des Pays de l'Adour, UPPA) in Pau, France. ENSGTI is an Engineering School, "Grande Ecole", specialized in Chemical/Process Engineering and Energy Engineering. The STEE College has been founded in the framework of the prestigious French Initiative of Excellence label I-SITE (Initiatives Sciences, Innovation, Territories and Economy), obtained by our E2S-UPPA project.

The program is carried out in close collaboration with the LaTEP research laboratory. The LaTEP (laboratory of thermal engineering, energy and processes) addresses the issue of the energy transition by carrying out research in energy and environmental engineering.

Student Learning Outcomes

At the end of this program, the students receiving the SIMOS Master's degree, will be able to:

- Analyze the energy issues at the global scale (energy supply, resource-dependent industries, macroeconomic implications of energy demand, geopolitical issues, specifics of the situation in developing countries, cycle life analysis, carbon balance...)
- Describe, design and operate the major systems for conversion, storage and distribution of energy
- Enforce thermo-economic and exergo-economic methods in the context of energy efficiency and reuse
- Model energy systems and optimize their design and operating parameters, using appropriate algorithms
- Review, analyze and interpret the body of scientific literature, contemporary issues and innovations in energy systems.
- Carry out a research project aimed at developing a state of the art and at identifying and solving scientific and technological challenges in the context of energy system design and operation

Prospects for employment or further study

SECTORS:

- Mechanical engineering
- Energetics
- Chemical engineering
- Petroleum engineering
- Civil engineering

FIELDS:

- Research
- R&D structures
- Production / Industry

POSITIONS:

- R&D Engineer
- PhD student
- Production engineer
- Expertise in optimization of energy systems

Program objectives

- Prepare students at an advanced specialized level to meet present and future scientific and technological challenges in optimal energy management.
- Develop research skills to engage in quality and successful research.
- Prepare students for leading positions in private and public organizations in research and development departments.

The first semester credits (30 ECTS) are attributed at the admission in the Master program by validation of prior learning experience.

The program is then organized in three semesters (30 ECTS each):

- Semester 2 (mid-September to mid-January) is devoted to courses and projects
- Semester 3 (mid-January to June) is devoted to courses and projects.
- Semester 4 (July-December) is a 6 month internship.

SEMESTER 1 - Master 1

Credits (30 ECTS) of semester 1 are attributed at the admission in the program by validation of prior learning experience in Mathematics, Computer tools, Process engineering and Energy.

SEMESTER 2 - Master 1

- Linguistic preparation - Level II 8 ECTS
- Programming and numerical methods 7 ECTS
- Fundamentals of Engineering Thermodynamics 4 ECTS
- Worldwide energy supply issues 4 ECTS
- Energy conversion 7 ECTS

SEMESTER 3 - Master 2

- Energy efficiency and reuse 7 ECTS
- Modelling of energy systems 7 ECTS
- Numerical tools for optimization 7 ECTS
- Projects 9 ECTS

SEMESTER 4 - Master 2

Project or internship conducted in a company or research laboratory in France or abroad, the main objective being related to the professional project of the student (30 additional ECTS credits).

