

Contacts

Location

ENSGTI

Université de Pau
et des Pays de l'Adour
Pau Campus - France

More information (admission fees...)

master.simos_ensgti@univ-pau.fr
<https://ensgti.univ-pau.fr/master-simos>
<https://formation.univ-pau.fr/m-simos>

Coordinator

jean-pierre.bedecarrats@univ-pau.fr

Admission Office

master.programs@univ-pau.fr

How to apply

The application documents must be
uploaded on the website:
<https://ri.univ-pau.fr/m-programs>



Admission requirements



Academic requirements

Scientific Bachelor's or Licence's degree with prerequisites, including good basic knowledge in mathematics, physics, heat transfers, thermodynamics, and IT.

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

English Language Requirements

Minimum required score: CECRL B2 level in English

Detailed Program Facts

Academic Year: Our full academic year runs from September to June

Application: Applications are open from November to March 31st

Program intensity: Full-time

Duration: 2 years

Credits: 120 ECTS

Language: Fully taught in English

Level: Master's degree

Tuition fees: 8000 € for the Master's programme.
Year 1 - 4000€ / Year 2 - 4000€.

Master's degree IN ENERGY

SIMulation and Optimization of energy Systems (SIMOS)

Conception : Direction de la communication - Impression : Centre de reprographie - LUPPA - Février 2023



Overview

The SIMulation and Optimization of energy Systems (SIMOS) Master offers a 4-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

Opportunities

Sectors

- Mechanical engineering
- Petroleum engineering
- Energetics
- Civil engineering
- Chemical 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 program is organized in four semesters (30 ECTS each).

M1 - Semester 1

- Linguistic preparation
- Programming
- Heat transfers
- Fluid mechanics and Laboratory classes
- Electrical energy

M1 - Semester 2

- Numerical methods
- Engineering Thermodynamics
- Worldwide energy supply issues
- Energy conversion

M2 - Semester 3

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

M2 - Semester 4

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.