SHAKE THE FUTURE.

CENTRALE NANTES




Master

Industrial Engineering

# SMART AND CONNECTED ENTERPRISE

Graduate programme | Master in Sciences, Technologies and Health

## OBJECTIVES

**This Master develops skills for enterprise management based on process performance assessment and information systems design and management for smart and connected enterprises.**

The courses rely on both theoretical and practical aspects and cover the following areas: enterprise and complex system design, modelling and engineering; production management; information system design, development and management; interoperability of information systems; simulation and multi-criteria optimization of industrial processes; economic and social aspects for industrial engineering.

## SKILLS

### Specialism-specific

- To master enterprise modeling methods
- To master simulation and optimization methods for enterprise performance assessment
- To master interoperability of information systems of smart and connected enterprises

### General

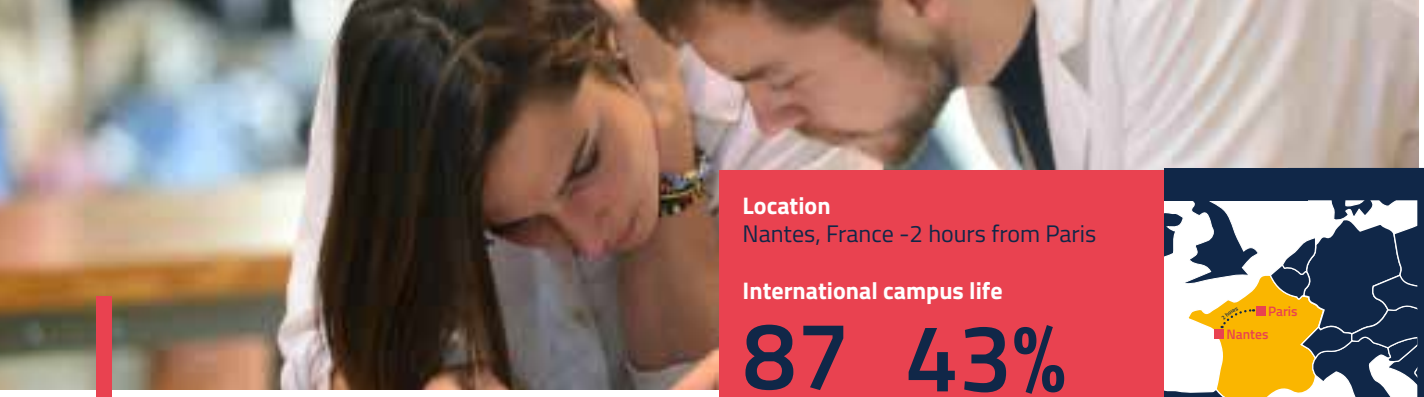
- To identify models, perform simulation and analyse results
- Communicate comprehensive results in a meaningful way
- Undertake bibliographic surveys from international research and professional literature
- To manage or be part of a project

## JOB PROSPECTS & FURTHER PHD STUDIES

**SECTOR:** Aeronautics, Automotive, Transports, Naval, Energy, Mechanics, Services, Consulting

**FIELDS:** Industrial engineering, Design engineering, Mechanical engineering, Production management, Information systems design and management, Research and Innovation

**JOB POSITIONS:** Industrial manager, Mechanical Engineer, Process Engineer, Production manager, Design Engineer, Research and Innovation Engineer (post PhD)



**Location**
Nantes, France -2 hours from Paris

**International campus life**

**87** nationalities

**43%** international students




**Master** in Sciences, Technologies and Health

## EXAMPLES OF FINAL YEAR PROJECTS

### 5 to 6 month internship in Industry

> ...

### 5 to 6 month thesis in Research Labs

> ...

## FACULTY, INDUSTRIAL PARTNERS AND RESEARCH LABS

This Master relies on the Centrale Nantes' faculty, staff and research facilities of the LS2N Research Institute and other faculty members from University of Nantes as well as modules deliverd experts from companies. Centrale Nantes has several industrial partnerships (Airbus, DCNS, Michelin, Alstom, Dassault Systems, Renault, Faurecia, etc.), service bureaux and start-up companies.

## OTHER PROGRAMME INFORMATION

> Length of Studies: 2 years
> Language of instruction: English
> 3 semesters of courses and 1 semester of Master's thesis

**Tuition & Fees - Scholarships - Application process - Deadlines**

**MORE INFORMATION AND FULL PROGRAMME:**
**www.ec-nantes.fr/masters**

**CONTACT: Ms Sarah Alami**
**master.admission@ec-nantes.fr**

## CONTENT AND COURSES

(A Master Degree requires the validation of 120 ECTS credits)

| M1 - AUTUMN SEMESTER | ECTS |
|---|---|
| Modelling of complex systems (1) | 4 |
| Enterprise modelling (1) | 4 |
| Introduction to Optimization Methods | 4 |
| Production management | 4 |
| Discrete-event Simulation | 4 |
| Financial and Economic aspects for Industrial Engineering | 4 |
| Conferences / Initiation to research | 2 |
| Modern Languages* | 4 |
| **M1 - SPRING SEMESTER** | **ECTS** |
| Systems engineering | 4 |
| Statistics and data analytics | 4 |
| Management Systems and Socio-Organizational Aspects for Industrial Engineering | 4 |
| Stochastic and Multi-Agent Simulation | 4 |
| Modelling of complex systems (2) | 4 |
| Innovation Engineering | 4 |
| Conferences and Initiation to Research | 2 |
| Modern Languages | 4 |
| **M2 - AUTUMN SEMESTER** | **ECTS** |
| Entreprise modelling (2) | 4 |
| Design of enterprise information systems | 4 |
| Collaborative information systems in enterprise | 4 |
| Integrated design engineering of product-service systems | 4 |
| Multi-criteria decision making and decision support | 4 |
| Information systems inter-operability | 4 |
| Conferences | 2 |
| Modern languages | 4 |
| **M2 - SPRING SEMESTER** | **ECTS** |
| Master Thesis or Industrial Internship | 30 |

NB Course content may be subject to minor changes

École Centrale de Nantes, Direction de la communication, July 2019



This Master's programme is accredited by French Ministry of Higher Education.

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RÉPUBLIQUE FRANÇAISE
MINISTÈRE DE L'ÉDUCATION NATIONALE, DE L'ENSEIGNEMENT SUPÉRIEUR ET DE LA RECHERCHE