



Master of Science (Msc) Industrial Engineering

SMART AND CONNECTED ENTERPRISE

OBJECTIVES

This MSc programme 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: Consultant in information systems and PLM, Consultant in manufacturing digitalisation, Expert on knowledge management and engineering, Data analyst in manufacturing, System architect,...





P6

Location

Nantes, France -2 hours from Paris

International campus life

87
nationalities

43%
international students



Master of Science (MSc)

EXAMPLES OF FINAL YEAR INTERNSHIP/MASTER'S THESIS

5 to 6 month internship in Industry

- > PLM / Knowledge based engineering - BMW Group (China), Safran (France)
- > Decision-Aid for industry excellence – Airbus Helicopters (France), Faurecia (France)
- > Systems Engineering – Altran (France), Dassault Systèmes (France), BFL (India)
- > Digitalisation of processes – Bouygues Construction (France), Amazon (France), Sanita (Lebanon)
- > Data Scientist – Airbus (France), Alsom (France)

5 to 6 month thesis in Research Labs

- > Development of mass customized products within PLM software 3DEXPERIENCE, LS2N, Nantes
- > Ramp-up Management in Industry 4.0, Institut Henri FAYOL, Saint Etienne, France
- > Knowledge engineering for decision aid to optimize product Lifecycle analysis studies and predict carbon footprint, LS2N, Nantes

FACULTY, INDUSTRIAL PARTNERS AND RESEARCH LABS

This MSc 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 delivered experts from companies. The research facilities of the LS2N include a smart factory platform and flexible assembly lines. Centrale Nantes is home to a business incubator with an entrepreneurship support programme for students and graduates of the three establishments of the Centrale - Audencia - ensa Nantes Alliance with a mature project (solution, market, team) to develop.

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: master.admission@ec-nantes.fr

CONTENT AND COURSES

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

M1 - AUTUMN SEMESTER	ECTS
Basics of Computer Science and Mathematics	4
Discrete-event Simulation	4
Financial and Economic Aspects for Industrial Engineering	4
Enterprise modelling	4
Statistics and Data Analysis	4
Introduction to Optimization Methods	4
Production Management	4
Modern Languages*	2
M1 - SPRING SEMESTER	ECTS
Operations Research	4
Innovation Engineering	4
Introduction to Research	4
Enterprise 4.0 Processes	4
Project Management	4
Introduction to Information Systems	4
Strategic Management of Sustainable Enterprise	4
Modern Languages	2
M2 - AUTUMN SEMESTER	ECTS
Artificial Intelligence for decision-making in industrial engineering	4
Knowledge-based Systems	5
Advanced IS within PLM Approach	4
Model-based Systems Engineering for product-service systems	4
Multi-criteria decision making and decision support	4
Integrated design and implementation of cyber-physical production systems	4
Project	3
Modern languages	2
M2 - SPRING SEMESTER	ECTS
Master Thesis or Industrial Internship (paid)*	30

*In France, for internships exceeding 2 months a minimum legal level of remuneration (approximately €600 per month) is fixed by the government. In some professional branches, this amount may be higher.

NB Course content may be subject to minor changes

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