



Master Industrial Engineering

AGILE FACTORY MANAGEMENT

OBJECTIVES

This Master develops skills for agile factory management based on operational research methods and production management approaches, such as lean, adaptive and reactive management.

The courses rely on both theoretical and practical aspects and cover the following areas: enterprise and complex system design, modelling and engineering; production management; simulation and multi-criteria optimization of industrial processes; economy and social aspects for industrial engineering; logistics; operational research; shop floor scheduling; design and control of production cyber-physical systems.

SKILLS

Specialism-specific

- > To master modeling and simulation of production systems
- > To master optimisation methods for production systems control
- > To master the new concepts and performance indicators of the smart and agile factory

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, Mechanical engineering, Production management, Research and Innovation.

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



Location
Nantes, France -2 hours from Paris

International campus life

70 nationalities
30% 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 delivered 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

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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 |
| Management Control Systems I: 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 Control Systems II: 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 |
| Production management (2) | 4 |
| Logistics | 4 |
| Operations research | 4 |
| Shop floor scheduling | 4 |
| Multi-criteria decision making and decision support | 4 |
| Integrated design and implementation of cyber-physical production systems (CPPS) | 4 |
| Conferences | 2 |
| Modern languages | 4 |
| M2 - SPRING SEMESTER | ECTS |
| Master Thesis or Industrial Internship | 30 |

*'French as a Foreign language' except for French native speakers who will study 'Cultural and Communicational English'

NB Course content may be subject to minor changes

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