



## 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).



P6

**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

- > Developing a framework to coordinate innovation projects, Assystem, Paris, France
- > Lean Manufacturing Manager, Louis Vuitton, Barberà del Vallès, Spain
- > ERP configuration with SAP, Mansa Sugar, Luapula, Zambia
- > Project Manager, DXC Technology, Paris, France

### 5 to 6 month thesis in Research Labs

- > Reducing mental-load on assembly lines: augmented reality contribution, LS2N, Nantes, France
- > Interoperability between MES and ERP, LS2N, Nantes, France

## 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](http://www.ec-nantes.fr/masters)

**CONTACT:** [master.admission@ec-nantes.fr](mailto: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
Economics and Management for Industrial Engineering	4
Basics of Computer Science and Mathematics	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
Simulation and Multi-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	1
Project	1
Modern languages	4
M2 - SPRING SEMESTER	ECTS
Master Thesis or Industrial Internship	30

NB Course content may be subject to minor changes

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