

**Welcome at
MINES Saint-Étienne!**



Industrial Engineering and Operations Research

Master of Science

www.mines-stetienne.fr



**INSPIRING
INNOVATION**
SINCE 1816

A Master of Science (National Masters' Degree)
*Accredited by the French Ministry of Higher Education and Research at the **École Nationale Supérieure des Mines de Saint-Étienne**, France, and 3 institutions of the **COMUE of Lyon University** (UJM, ECL, ENISE)*

 **Taught in English**

A new opportunity for international students

- Taught in English (the French-taught cursus is also available for foreign student)
- A one year programme
- provide the diploma of Master of science
- A key step for PhD studies

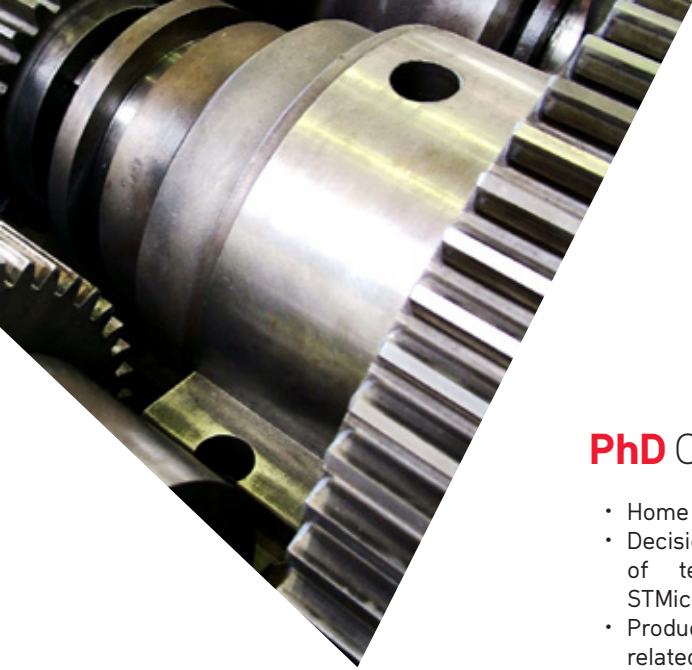
Develop high level skills on current industrial engineering methods while covering strategic, tactical and operational decision levels.

Modern enterprises are facing the challenge of producing at low costs with high quality and in short delay while ensuring high reliability of its equipment and reducing environmental impact.

Industrial Engineering and Operations Research meet the challenge with innovative scientific technologies for efficient design, operation and maintenance of manufacturing systems.

This one-year master of science programme deals with applications of advanced techniques of industrial engineering and operations research to decision making, especially scientific methods for modeling, performance evaluation, design, production planning and scheduling, supply chains management and maintenance of both manufacturing, service and logistics systems.

Special attentions will be given to major problems raised in the design and operation of manufacturing and service systems. Thanks to close relationships of the research labs with some major industrial partners, students will learn how to apply these cutting-edge techniques and how to face the complexity of various industrial sectors such as semiconductor manufacturing, health care delivery systems, automotive industry and transportation.



Course structure

- Operations management of production systems and supply chains (4 ECTS credits)
- Optimisation and decision support (4 ECTS credits)
- Enterprise modeling and engineering (4 ECTS credits)
- Design and performance evaluation of manufacturing systems (4 ECTS credits)
- Planning and scheduling of production and logistics systems (4 ECTS credits)
- Customer-centered strategies for Supply-Chain Management (4 ECTS credits)
- Literature survey study (3 ECTS credits)
- English courses (3 ECTS credits)
- Conferences and seminars
- Research internship (>=20 weeks) (30 ECTS credits)

PhD Opportunities

- Home care planning
- Decision support for the management of temporal constraints (PhD with STMicroelectronics)
- Production planning with uncertainties related to machines failures (PhD from University of Technology of Troyes)

Internships Opportunities

- Modelling and optimisation in project management: application to consulting
- Implementation of a new kitting feature in an Advanced Planning and Scheduling software

Job Opportunities

- Research & Development in Production and Logistics
- Management of enterprises
- Consulting

Requirements for applicants

- Prior successful completion of a first year of a Master's Degree in theoretical and / or applied science, or equivalent diploma (at the home university or Ecole des Mines) / or 240 ECTS validated
- A good command in English is mandatory



**With the collaboration of the
research laboratory**

**LIMOS,
UMR CNRS 6158
which gathers:**

Research field:

Operations Research, Mathematical models to optimize complex product and production Systems, Industrial Engineering, Computer Science

90 faculty members

92 PhD Students

Main industrial partners:

Casino Group, Michelin, Renault Group, SNCF (French National Railway Company), St-Etienne Health Center, STMicroelectronics

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 **La Région**
Auvergne-Rhône-Alpes



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