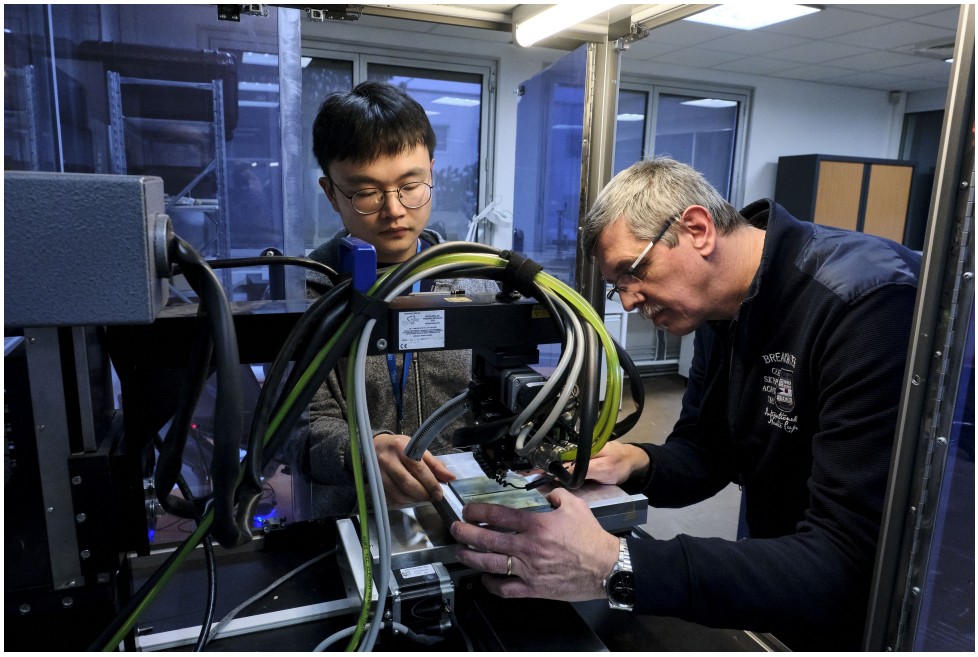
CENTRALE LYON

International Master Sustainable Manufacturing and Advanced Technologies

Degree level: Master
Training time: 2 years
Language: English
Status: Student
Campus: Saint-Etienne Campus

Objectives

The **master Sustainable Manufacturing and Advanced Technologies** prepares future industry executives, researchers and teacher-researchers by offering them unique technical and scientific expertise. They acquire a solid grounding in the **domain of materials** and **advanced manufacturing processes** enabling them to **meet future technological and environmental challenges for a sustainable environment**



This master's program aims to:

- To provide the graduates with **strong basis** in materials and advanced manufacturing processes
- To develop a **practical know-how** on a wide range of manufacturing processes and characterization techniques
- To train a new generation of graduates and future industrial managers that are capable to **embrace future technological and environmental challenges towards a sustainable environment**
- To develop **international and intercultural skills;**
- To train the graduates in **collaborative work and project management**
- To propose key **specialization** in sustainable manufacturing and, for some students, insights into digital, smart and clean manufacturing at a partner university.

Program

The course is divided into four semesters taught by Centrale Lyon at its Saint-Etienne campus and Mines Saint-Etienne.

First year

The first year of the **Master** is structured in two complementary semesters. Students are introduced to the **fundamental concepts of advanced manufacturing at Centrale Lyon** then acquire **core knowledge in materials science at Mines Saint-Étienne**.

Semester 1: Fundamentals of Advanced Manufacturing

Courses in the first semester are held at Centrale Lyon on the Saint-Étienne campus.

Core Modules

- Materials
- Computer Science

Specialised Modules

- Metal Machining Processes
- Additive Manufacturing
- Physical Measurements
- Cross-disciplinary Project in Advanced Manufacturing

Elective Modules

- Production Engineering
- High-Temperature Processes

Complementary Modules

- Research Methods
- Foreign Language

Semester 2: Fundamentals of Materials Science

Courses in the second semester are held at **Mines Saint-Étienne**.

- Materials Science II
- Mechanics of Materials

- Materials Characterisation
- Computer Science II
- General Education

Second year

In the second year, students follow a specific ‘Sustainable Manufacturing’ course run by École Centrale Lyon and Mines Saint-Etienne, before completing their course with a 5-month work placement.

Semester 3: Sustainable Manufacturing

Scientific Modules

- Modelling of Material Removal and Wear
- Modelling of Thermomechanical Processes and Surface Integrity
- Surface Repair and Functionalisation
- Materials Durability
- Materials and Processes
- Industry 4.0 / Materials Characterisation III

Complementary Modules

- Preparatory Research Project
- Responsible Engineering
- Foreign Language

Some students who have completed the first year may be eligible, upon application, to undertake an academic exchange at a partner institution.

Semester 4: Work placement

Students must complete a 5-month work placement in industry or in one of the partner research laboratories.

Diploma and certification

This course awards a national master's degree - controlled by the State.



Career opportunities

- **Industry: Employment opportunities in R&D or interdisciplinary project manager positions in the energy, transport, manufacturing and material production sectors**
- **Academia: Research or higher education with possibilities to go on a PhD**

Focus

- A program taught entirely in english at École Centrale de Lyon and Mines Saint-Etienne
- International mobility opportunities at a partner university
- Theoretical and applied courses on manufacturing processes and advanced materials
- A 5-month internship and projects in a multidisciplinary environment

Admission requirements and application

Pre-requisites

Applicants must hold a bachelor's degree in science or engineering, or an equivalent diploma (180 ECTS), with a minimum average of 'B' on the ECTS scale. They must also have completed at least three years of study in one of the following fields:

- Mechanics
- Mechanical engineering
- Materials science and engineering
- Or potentially Mechatronics

More information on the dedicated website

Application

Applications run from November to February. Applications are considered on the basis of a portfolio.

More information on the dedicated website

Applications are considered on the basis of a dossier.

Discover application procedures

Tuition fees

Knowing and anticipating your expenses is essential before making a serene commitment to training.

Discovering master's tuition fees Discover the average study budget at Centrale Lyon

Administrative contact

Education department - International Masters

Information and registration

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Educational contact

Courbon Cédric

Enseignant-Chercheur

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