Welcome to MINES Saint-Étienne!

Tribology and Surface Engineering
Master of Science

www.mines-stetienne.fr
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 (Lyon 1, 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
- Master of science diploma
- A key step for PhD studies

Preparing students for the latest challenges in Surface Engineering applied to industrial and academic R&D.

The Master of Science is based on a set of courses in the field of Tribology and Surface Engineering taught by members of the research labs and industries involved in Manutech in the Lyon – St-Etienne Area. It aims to provide students with fundamental and advanced knowledge of this research field. Core subjects cover topics which are explored in depth in elective classes and through laboratory work.
Course structure

Mandatory courses (12 ECTS)
- Computational mechanics (Mandatory 6 ECTS)
- Mechanics of materials (Mandatory 6 ECTS)

Specific courses (12 ECTS)
- Corrosion and surface reactivity (6 ECTS)
- Tribology and Surface characterisation (3 ECTS)
- Surface functionalisation (3 ECTS)
- Coatings in surface engineering (3 ECTS)
- Mechanical surface texturing (3 ECTS)

Additional courses (6 ECTS)
- Damage and Fracture Mechanics (6 ECTS)
- Additive Manufacturing (6 ECTS)
- Solid and structure dynamics (3 ECTS)
- Mechanics of composite materials (3 ECTS)

Human sciences and lab project (9 ECTS)
- English and/or French (3 ECTS)
- Bibliographic study (3 ECTS)
- Lab project (3 ECTS)

6-month Research training period (21 ECTS)

PhD Opportunities
PhD in the field of Materials, Mechanical and Surface Science and Engineering
Each year several positions are available in research institutions involved in Manutech

Internship Opportunities
Internships in research institutions involved in Manutech and/or with their industrial partners.

Job Opportunities
Research & Development in mechanics and surface engineering for mechanical industries and research institutions.

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 of English is mandatory
With the collaboration of the research Laboratory Georges Friedel which gathers:

Centre for Materials and Mechanical Engineering (SMS)

Centre for Science of Industrial and Natural Processes (SPIN)

50 researchers

65 PhD Students

Industrial partnerships
(Areva, Safran, EADS, CEA, H&F, … )

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