

Master's Degree in Science and Executive Engineering

Coupling Top Level Academics
with Professionalization since 1816



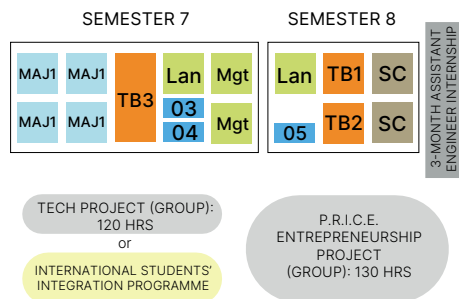
Mines Saint-Étienne

5 Excellent reasons to join us

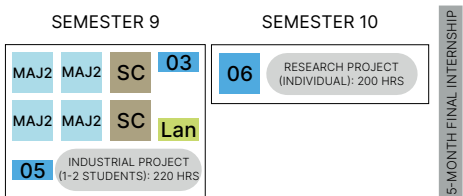
- High Faculty/Student ratio : 1 to 5, one-on-one personalised tutoring
- Extensive Hands-on Experience
- Unique Informal Learning, Networking, Alumni
- Superb Residential Experience
- World-Class International Partnerships

The aim of the « Ingénieur Civil des Mines » Master's degree in Science and Executive Engineering is to train engineers for top-level management and technical positions in industrial and service companies in a globalised context.

MASTER'S YEAR 1 (M1)



MASTER'S YEAR 2 (M2)



TOP LEVEL ACADEMICS:

- Mgt** Management, total: 80 hours
- Lan** 2/3 Foreign Languages, total: 100 hours English + another language (Spanish, German, French...)
- TB** Choice of 3 from 37 Scientific Elective Toolboxes (TB3+TB1+TB2) total: 240 hours
- MAJ1** 2 Majors, total: 320 hours
- MAJ2**
- SC** 1 Societal Challenge, total: 160 hours

SPECIALISED PROFESSIONALIZATION:

- 2 internships, total: 8 months
- 4 Professionalization and Openness Modules, total: 130 hours
- 4 Multidisciplinary Projects, total: 670 hours

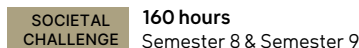
STEP 1: STUDENTS CHOOSE 2 MAJORS...



from 11 Fundamental Disciplines:

- Materials Science..... 100%
- Mechanics..... 100%
- Process and Energy Engineering..... 50%
- Connected Objects..... 70%
- Computer Science..... 75%
- Data Science..... 100%
- Production and Logistics Management..... 75%
- Biomedical Engineering..... 100%
- Industrial and Territorial Environments..... 100%
- Management and Corporate Finance..... 100%
- Fluid Dynamics..... 100%

STEP 2: STUDENTS CHOOSE 1 SOCIETAL CHALLENGE...







































in which to apply their 2 Majors:

- Eco-Design..... 50%
- Energy Transition..... 25%
- Nanotechnologies..... 50%
- Leverage and Management of Industrial Renewal..... 25%
- Personalised Medicine and Healthcare..... 75%
- Artificial Intelligence..... 100%
- Big Data..... 50%
- Design/Thinking/Innovation..... 50%

SCIENTIFIC ELECTIVES AS “TOOLBOXES”:160 HOURS

Choose 3 “toolboxes”: 2×40hrs and 1×80hrs

Choose from at least 3 different colours to ensure interdisciplinarity

Fundamentals of finite element calculation	40h 	Economics	40h 
Physical methods for matter characterization	40h  30%	International management	40h  100%
Practical finite elements	40h  100%	Projet management	40h  100%
3D Printing	40h 	International finance	40h  100%
Mechanical engineering and materials science for the construction industry	40h 	Entrepreneurship, entrepreneurial dynamics and innovation	40h 
Design/Virtualization/Materialization	40h 	Change management	40h 
Advanced fluid mechanics	40h  100%	Economic intelligence and innovation management	80h 
Artificial intelligence methods for mechanics	40h 	Introduction to political engineering	80h 
Process design	80h  100%	Management of water resources and polluted sites	40h 
Nanophysics	80h  30%	Human resources management	40h 
Introduction to image processing	40h  100%	Tools and risk analysis	40h 
Industrial statistics	40h 	Geomines : geology and mineral resources	40h 
Experimental methods	40h  100%	Environmental assessment	40h 
Tensor Calculus	40h  100%	Risks management, reliability and operational security of a company	40h 
Operational research and decision support tools	80h 		
Image and pattern recognition	80h  100%		
Advanced modelling and numerical simulation	80h  60%		
Enterprise software application	40h 		
Integrated applications	40h 		
Paradigms for discrete problem solving	40h 		
High performance computing	40h 		
Networks	40h 		
Web, mobile and embedded programming	80h  100%		

full syllabus:



Professionalization modules to prepare interships:
130 hours

Inter-Cultural Awareness 04
Semester 7

Certification Workshops 05
Semester 8 and 10

Professions 06
Semester 10

Business Sectors 03
Semester 10





Back left to right: Ana – Brazil, Faustine – France, Natalia – Brazil, Gaya – Lebanon, Taha – Morocco, Benjamin – France, Omar – Lebanon, Robin – Ethiopia. Front : Juan Pablo – Colombia

“On est venus en France pour découvrir la culture française, et finalement, on a découvert le monde”

Mines Saint-Étienne

Campus Saint-Étienne

158, cours Fauriel
42023 Saint-Étienne

Campus Lyon

Campus Région du numérique
78, route de Paris
69260 Charbonnières-les-Bains

Campus Aix-Marseille-Provence

880, route de Mimet
13541 Gardanne



www.mines-stetienne.fr



**MINISTÈRE
DE L'ÉCONOMIE,
DES FINANCES
ET DE LA SOUVERAINÉTÉ
INDUSTRIELLE ET NUMÉRIQUE**

*Liberté
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Fraternité*