



Master of engineering in

Materials Science and Engineering

PRESENTATION

Dedicated to master students, Materials Science and Engineering (MSE) specialty aims at providing high-level academic and **project-oriented** education about the **design**, the **characterization** and the **processing** of all classes of materials (metals, ceramics, polymers, composites). This program develops skills necessary for forming, shaping and combining materials, and for understanding the **relationships between material microstructure and their physical, physicochemical and mechanical properties** and to analyze the materials lifecycle and degradation process in the context of sustainable development so as to respond to contemporary industrial and social requirements. Teachings are based on MSE program of Phelma Engineering School and on the **FAME and MaNuEn international masters** which enable special emphasis on structural materials, functional materials and materials used in a nuclear environment, respectively.

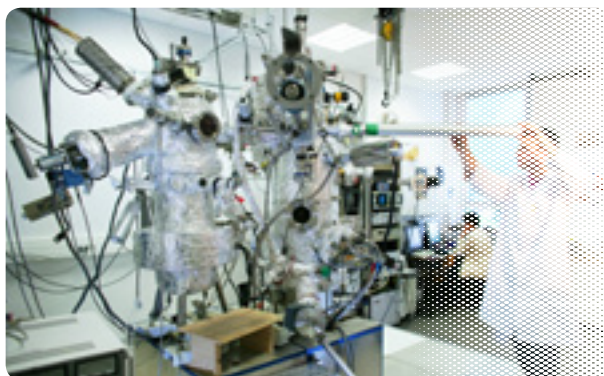


INDUSTRIAL SECTORS

This program forms a new generation of students with **multidisciplinary and transdisciplinary profile** to be competent in the areas of **physical chemistry**, **mechanics** and **physical modeling** allowing them to fill the following roles: materials scientist, project manager, engineering consultant and engineer for production, R&D, products or quality in various industrial sectors such as transport (automobile industry, avionics, trains, etc.), electrical and nuclear energy, materials and metallurgy (polymers, ceramics, composites and metals), microelectronics, surface treatment and coatings.

RESEARCH

Research in Materials Science and Engineering is vibrant, relevant, and varied. There are major research centers that cut across the boundaries of the MSE department. Among them the **Centre of Excellence of Multifunctional Architected Materials** (CEMAM) is devoted to the design, creation, and the fundamental understanding of new **multifunctional materials** and improved performances that will underlie the technologies of the future. CEMAM is the brainchild of **SIMAP**, **LEPMI**, and **LMGP**, three academic laboratories specializing in Materials Science and Process Engineering.



ASSETS

Materials Science and Engineering courses ensure an intensive and innovative training based on the **strong coupling training / academic / industry**. The program relies on a very active research community providing a highly interdisciplinary environment. Students work closely with faculty through several **lab projects** and **lab practices** in state-of-the-art facilities (cleanroom, advanced characterization tools, modeling project in close connection with industry).

CONTACT

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Grenoble INP - Phelma is the school for scientific diversity. It offers its students courses in various fields with a promising future: **micro and nano-technologies** (micro / nano-electronics, nano-sciences, materials, health, building, etc.), **energy** (nuclear energy, renewable energies, accumulators, etc.), **innovative materials** (for aeronautics, automobiles, sport & leisure, health, microelectronics, energy, etc.), **information technology** (digital technologies, image and signal processing, telecommunications, computer science & networks, embedded softwares, etc.), **biomedical engineering** (medical imagery and therapy, implantable devices, etc.) and the **environment** (eco-processes, energy management, natural signal analysis, etc.).

Based in Grenoble in the heart of the French Rhône Alpes region, Phelma boasts a rich academic and industrial infrastructure. As the only teaching institute on the Minatec innovation campus, Phelma benefits from an exceptional Training / Research / Industry synergy.

Key figures: more than 1,200 students, plus 300 engineering graduates a year, 150 permanent research lecturers from the school's thirteen partner laboratories, 200 speakers from industry and the world of research, plus 25% of engineering students studying for doctorates.

PRESS RANKINGS



Grenoble INP, leader in 2 lists from QS World University Rankings Engineering & Technology 2014



Grenoble INP ranked 2nd by L'Usine Nouvelle among the 100 best french engineering schools in 2014



Grenoble INP ranked 1st by « Industrie et Technologies » in 2013



Grenoble, ranked 5th World's most inventive city by Forbes in 2013

