

# International Master Nanotech Micro and Nano Technologies for Integrated



## PRESENTATION

Micro and nanotechnologies are combined to design, characterize, integrate and manufacture miniaturized components and systems. The aim of this program is to train engineers with a wide range of knowledge in this field, which has flourishing applications in all sectors of the economy.

Three leading academic institutions have joined their forces to offer a joint program by completing one semester at each of them. The first semester takes place at the Politecnico di Torino (Italy). The second semester takes place at Phelma, where research, education, and industry meet. Located in a rich industrial and research environment, the Minatec campus is the ideal place for highly motivated students with a strong career interest. The third semester takes place at the Ecole Polytechnique Fédérale de Lausanne (Switzerland). All courses are in English.

## INDUSTRIAL SECTORS

Students in this program will be awarded an Engineering degree from Grenoble INP - UGA, a Laurea magistrale from Politecnico di Torino, as well as a joint Master of Science. They pursue engineering or doctoral studies in various areas such as : research and development, microelectronics, microsystems, nanotechnologies, biotechnology, automotive, aerospace, telecommunications, strategy and consulting.

## RESEARCH

Each student should perform a master thesis either in a company or in a research laboratory (France or abroad). This is an opportunity to consolidate and discover working methods and to learn to manage real projects. Optimal working conditions and exciting opportunities are offered thanks to a long-standing relation with laboratories such as CEA-Leti, CSEM, CNRS, Palo Alto Research Center, MIT, UC Berkeley, NSU, NDL-Taiwan, or companies: STMicroelectronics, IBM, Melexis, EM-Marin, SOITEC, LEMOPTIX, IMEC, NXP.

# ASSETS

The program is unique in Europe not only because of the three world-class institutions involved but also because of the content of the courses a bridge between physics and electronics in the benefit of micro/nano systems. The intense practical training in nanotechnology (design, clean room, characterization, STM, AFM,...) is proposed. Solid theoretical basis are provided in physics (solid state, nanostructures, advanced microscopy and lithography...), electronics (nanoelectronics, optoelectronics, analogue and digital circuit design, hardware systems modeling) and microtechnologies (microsystems, characterization of technological processes, biotechnologies, modeling of microsystems). The international mobility and the multiculturalism (around 10 nationalities by year) are other two strength points for the Nanotech program.



## PRESS RANKINGS



### Shanghai

Since 2020, Grenoble INP - UGA has contributed to the international ranking of the University of Grenoble Alpes  
**Shanghai Global 2022**

Grenoble Alpes University ranked among the 150 best universities in the world and in the top 5 of French universities.



### QS 2023 ranking by theme: Grenoble INP - UGA makes good progress in the field of engineering and technology

Grenoble INP - UGA has made good progress in the overall field of "engineering and technology", moving up 74 places to 93rd position worldwide and 5th position in France, making it the leading institution outside the Paris region. The institute has made eight appearances in this ranking.



### REUTERS

**Grenoble INP - UGA leader in 2 lists from Reuters Ranking 2019**

#### Most innovative universities in Europe

- 2<sup>nd</sup> of the French Engineering Schools
- 13<sup>th</sup> in France

Grenoble INP - Phelma, UGA is the school for scientific diversity. It offers its students courses in various fields with a promising future:

- **Microelectronics and nano-technologies** (electronics, nanosciences, materials, health),
- **Decarbonated energy** (nuclear energy, photovoltaic, electrochemical storage),
- **Information technology** (digital communication, image and signal processing, telecommunications, computing and networks, Internet of Things, artificial intelligence),
- **Innovative materials** (for aeronautics, automobiles, sport & leisures, health, microelectronics, energy),
- **Biotechnology and biomedical engineering** (medical imagery and therapy, implantable devices),
- **Sustainable development** (decarbonated energies, eco-processes, recycling, material durability, energy management, natural signal analysis).

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.



**1,400** students  
**380 +** Engineering graduates a year  
**+ More than 25%** of engineering go on to complete a thesis

**110** permanent teacher-researchers from  
**11** laboratories associated with the school  
**Approximately 370** stakeholders from industry and research

## CONTACT

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