

Laboratories, chairs and platforms at Grenoble INP-Ense³, UGA



75 RESEARCH FELLOWS

11 PARTNER RESEARCH
LABORATORIES

10% OF OUR ENGINEERING
GRADUATES GO ON TO
STUDY FOR A PHD

6 INDUSTRIAL
RESEARCH CHAIRS

5000 M² OF TEACHING AND RESEARCH
PLATFORMS AND FABLABS

Grenoble - Alpes region: a unique scientific center in Europe

The Auvergne-Rhône-Alpes region and Grenoble in particular, form one of Europe's leading centers for science and technology. The Grenoble area is home to more than 1,300 research scientists and PhD students researching issues within the scope of Grenoble INP - Ense³, UGA :

- 2 regional innovation clusters: Minalogic (digital technology) and Tenerrdis (energy transition)
- A Carnot Research Institute (Energies of the Future) bringing together Grenoble stakeholders in new energy technologies.

Strong ties between research and training at Grenoble-Ense³, UGA

Our research fellows work in one of our 11 partner research laboratories. These laboratories are involved in training our engineers, by proposing research projects, internships, research based-programs or Ph.D. thesis topics.

- **Carrying out an internship in a laboratory** : students from our partner institutions, in their 3rd year of a Bachelor's or Master's degree, can carry out a research internship in one of our 11 partner laboratories. In France, all internships over 2 months are paid. An internship agreement is mandatory in all cases. The duration of an internship in France cannot exceed 6 months.
- **Joining UGA Graduate School thematic programs (GS@UGA)** : these programs offer specific high-level and research-based training on major scientific and/or societal challenges such as technological, natural and financial risks or energy transition. They provide students with the opportunity to be immersed in a stimulating scientific environment and give them an initial professional experience as member of a laboratory or research institute. Students can apply to these programs once they have been accepted in one of our Master's programs.
- **Preparing a Ph.D** : in France, the PhD is a research program resulting in the highest university degree. It is prepared over three years, or more depending on the discipline, after obtaining a Master's degree or equivalent diploma. It gives access to careers in public or private research, but also in all sectors that require a spirit of analysis and synthesis, rigor, autonomy, creativity, perseverance and the implementation of complex issues. The Université Grenoble Alpes Doctoral College welcomes 3,000 PhD students, 47% of whom are international, in its 13 Doctoral Schools.

The Grenoble INP-Ense³, UGA Chairs

The aim of our Chairs is to develop forward-looking research and educational innovation programs, with the support of partners from the socio-economic world, in order to meet the immediate and longer-term challenges of society and the economic world, through innovation. Most of them are supported by the Grenoble INP Foundation.

Hydro'Like - Innovation for the hydraulic machines of the future

Industrial partner : General Electric Renewable Energy

This industrial excellence Chair aims to develop hydraulic machines that are compatible with emerging renewable energy needs and to promote hydraulic power, the leading source of renewable energy, to a wide audience in France and abroad.

HOPE - Innovating to combat fuel poverty

12 industrial and institutional partners

Aims to study ways of measuring fuel poverty and its impacts, and to promote technical and social innovation to create new sectors, solutions and services for the people affected.

Deep Red - Artificial intelligence for infrared imaging

This teaching and research Chair's aim to support research activities that address the future challenges of artificial intelligence (AI) in infrared imaging, as well as to provide teaching initiatives in line with its expertise.

SmartGrids - A smart electrical grid for all

Industrial partner: LYNRED

This industrial excellence Chair aims to provide answers to questions raised by the rapid evolution of uses and their impact on distribution networks, new network architectures, new observation and control technologies for these networks, their interaction with telecommunication channels, the security of combined «electrical/telecom» networks, etc.

Nethuns - Simulating hydroelectric turbines to better integrate intermittent energy

Industrial partner: General Electric Renewable Energy

This French National research Agency (ANR) industrial Chair aims to develop a simulation tool to design new hydroelectric turbines that facilitate the integration of intermittent energies into electricity networks.

Oxalia - Designing more efficient hydraulic structures and protecting the shoreline

Industrial partner: Artelia

This industrial excellence Chair aims to create innovative digital models to design more efficient hydraulic structures and solutions to prevent river and shoreline erosion.



11 partner laboratories

Electrical Engineering

Grenoble Electrical Engineering - G2Elab : the laboratory includes a scientific dimension that ranges from materials and devices to the design and management of electrical energy systems. Its activities can be summarized by the following keywords: electrical energy, materials for electrical engineering, innovative processes and systems, modelling and design.

Fluid mechanics and energy

Laboratoire des Écoulements Géophysiques et Industriels - LEGI : the laboratory carries out a wide range of research activities with a common ground: fluid mechanics and related transport phenomena. It develops fundamental research areas to address major scientific challenges facing fluid mechanics today.

Matter and flow

Laboratoire Rhéologie et Procédés – LRP : Its research activities include complex fluid mechanics, with a focus on multiphase fluids and microfluidic approaches, and process engineering, with recognized expertise in ultrasonic intensification and extensive work around biosourced composites.

Geomechanics, civil engineering and risks

Sols, solides, structures, risques - 3SR : it conducts cutting-edge research in solid mechanics, research that affects the fields of structural engineering, structures and materials for civil engineering, transport, manufacturing industry or health. Research is based on experimentation as well as modelling, both at the material and structural levels.

Environmental Geosciences

Institute of Environmental Geosciences – IGE : the laboratory conducts research on climate and the anthropization of our planet, particularly in regions where societal and environmental issues are most prevalent: the polar regions, the intertropical zone, and mountainous regions.

Electrochemistry and process Engineering

Laboratory of Electrochemistry and Physical-Chemistry of Materials and Interfaces-LEPMI : it brings together expertise in most areas of electrochemistry, particularly in electrochemical energy production and storage and photovoltaics by combining materials science and electrochemical engineering.

Image, Speech, Signal, Automatic

Grenoble Images Speech Signal and Control - GIPSA-lab : it conducts both basic and applied research on complex signals and systems - automatic control, signal and images processing, speech and cognition. It develops projects in the strategic areas of energy, environment, communication, intelligent systems, life and health and language engineering.

Design and Optimization for Production

Sciences pour la conception, l'Optimisation et la Production - G-SCOP : the laboratory was created to meet the scientific challenges posed by ongoing changes within the industrial world. Its scope ranges from product conception to production systems management and is based on strong optimization skills.

Materials

SiMaP laboratory: its researchers are from the fields of chemistry, physics, mechanical properties of materials and fluids and thermals and work on the conception of processes and synthesis of materials. SiMaP is one the leading laboratories for physical metallurgy and thermodynamics as well as architectural materials.

Applied Economics

Grenoble Applied Economy Laboratory - GAEL: its main focus is the microeconomics of sustainable innovation and consumption, with results mainly applied to the fields of energy and agroindustry. Research is structured along three main axes: consumption, energy and innovation.

Subatomic Physics and Cosmology

Laboratory of Subatomic Physics & Cosmology - LPSC: the aim of its research is to improve our knowledge of the most elementary particles and the forces that govern their interactions. It helps to broaden our understanding of the universe, its structure and its evolution.

2 teaching and research platforms, 1 Fab Lab

- **Predis - Energy innovation and training platform**

Researchers from this platform work on skills synergy in research, industry and training. This infrastructure provides technological means on decentralized and renewable production, intelligent network management and low consumption technologies.

- **M2E - Mechanics, water and environment platform**

It consists of 5 platforms enabling both water and sediment quality and the dynamic behavior of structures to be identified; they consist of their own industrial processes, as well as hydraulic and tidal machines.

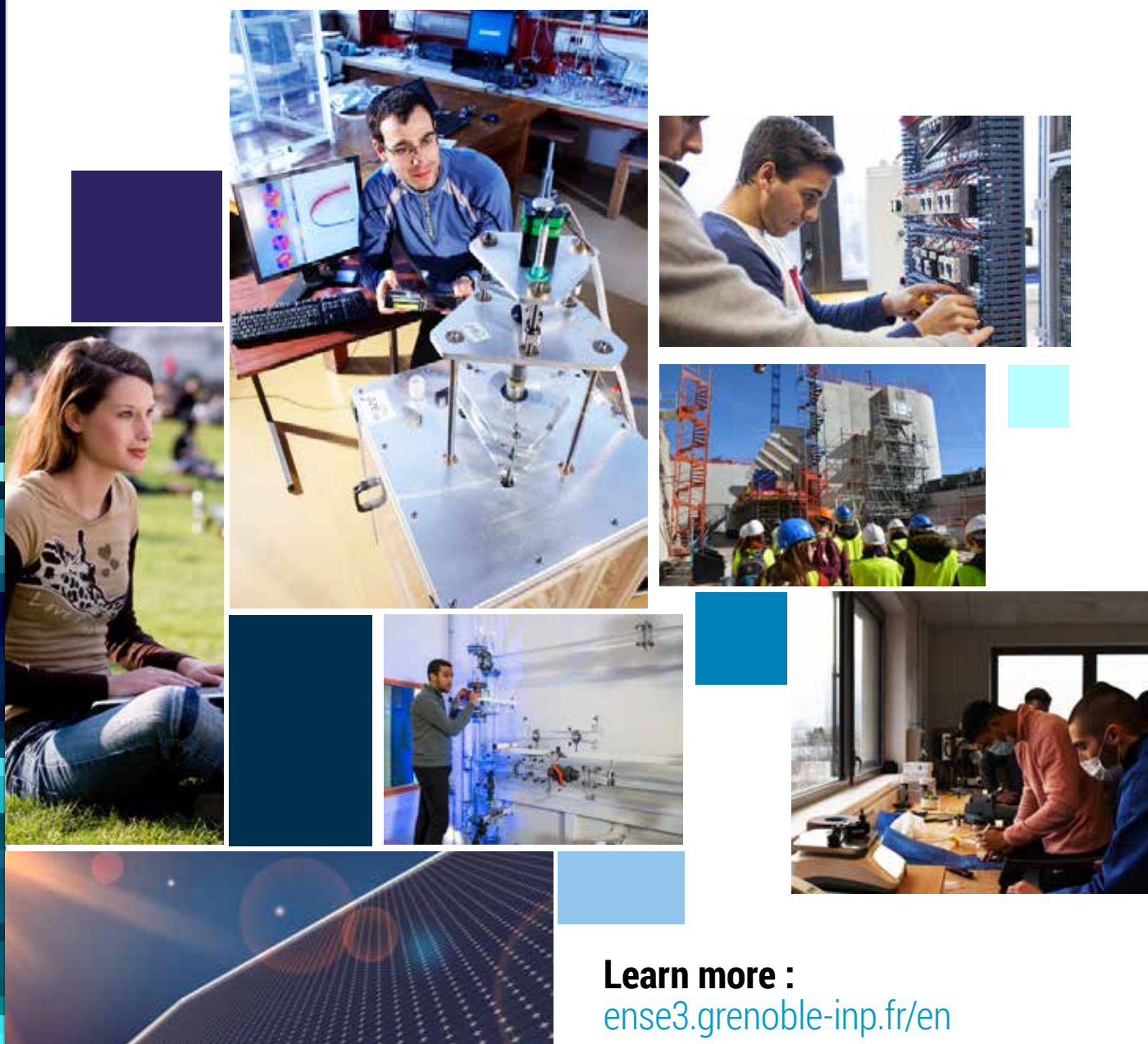
- **Fab Lab**

Spread over 500m² and 3 rooms, equipment (machines, tools, material and intellectual resources) are made available to both staff and students to enable production of an object, a prototype, proof of concept, etc.

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