## ENERGY, WATER AND ENVIRONMENTAL SCIENCES challenge the future

ÉCOLE NATIONALE SUPÉRIEURE DE L'ÉNERGIE, L'EAU ET L'ENVIRONNEMENT

Grenoble INP ENSE<sup>3</sup>

http://ense3.grenoble-inp.fr

### Grenoble INP

ACCÉLÉRATEUR D'AVENIRS SPRINGBOARD TO THE FUTURE

By studying at Grenoble Institute of Technology, you will benefit from a level of research unique in France and a cursus of training dealing with the greatest challenges facing modern society : energy, the environment, information management and the global economy

#### Grenoble Institute of Technology, Springboard to the future

Grenoble Institute of Technology is changing, with 22 fields of engineering study based on 6 scientific and technological topics, 26 research laboratories, and R&D services renowned in the industrial and scientific communities.

## Grenoble Institute of Technology, developer of expertise

Grenoble Institute of Technology offers 22 different fields of engineering training, 11 joint Master degree programs, 7 international degrees including 2 Erasmus Mundus Masters, and 6 Doctorate curriculum along with specialized training in 6 scientific topics and tech-nologies:

- Advanced Systems and Networks
- Energy, Water and Environmental Sciences
- Industrial Engineering
- Informatics, Applied Mathematics, Telecommunications
- Paper science, Print Media and Biomaterials

• Physics, Applied Physics, Electronics and Materials Science.

## Grenoble Institute of Technology, catalyst for discovery

A global research center in constant evolution with 26 research laboratories specialized in engineering sciences exploring the technologies of the future in 6 key domains:

- Energy
- Environment
- Information and Communication
- Materials
- Micro and Nanotechnology
- Production Systems.

#### Welcome to Ense<sup>3</sup>

Owing to its outstanding scientific environment and its pioneering activities linked with hydroelectricity, Grenoble has always been in the forefront of the development of new technologies in the field of energy and water management.

Taking full advantage of this background, the Ense<sup>3</sup> school trains high-level engineers and doctors able to take up the challenges associated with the new energy order, with the increasing demand of water, both in quantity and quality, and with sustainable development and country planning.

Our school combines technical and scientific skills in the domains of electrical, mechanical, hydraulic, civil and environmental engineering to be able to handle the full energy chain (production, distribution, usages, trading) as well as the full water cycle (harnessing, storage, supply, treatment).

#### **Facts and Figures**

- Merging of two engineering schools initially founded in 1898
- 1200 students: 750 at the Master level 150 at the PhD level
- 10 student/staff ratio
- 11 research laboratories
- 2 000 m2 of technology platforms and demonstration facilities
- 250 industrial partners

# An international training of the highest standard, business orientated

At Ense<sup>3</sup> the first year curriculum is common to the eight courses of study and focuses mainly on engineering sciences, with some elective courses.

At the end of the first year, each student chooses a field of study and the second and third years are specializing years.

Students are expected to complete 3 industrial internships during their engineering studies :

- a four-week work placement at the end of the first year (to give the students an idea of life in industry).
- an eight-week work experience period as an "assistant engineer" at the end of the second year.

• a five-month internship (master thesis) to give the students the opportunity to put into practice what they have learned at Ense<sup>3</sup> and to acquire a first professional experience.

At the end of the cursus, you will obtain a Master's degree in engineering. You can, if you wish, continue your studies, either in France or abroad, with an internationally recognized degree.



#### Fields of engineering study

Ense<sup>3</sup> offers eight courses of study :

- Electrical Power Engineering
- Mechanics and Energetics
- Electrical and Nuclear Engineering\*
- Energy systems and associated markets
- Hydraulic, civil and environmental engineering
- Automatic control, systems and IT
- Signal and Image Processing, Communication
- Systems, Multimedia engineering\*
- Product Engineering\*\*

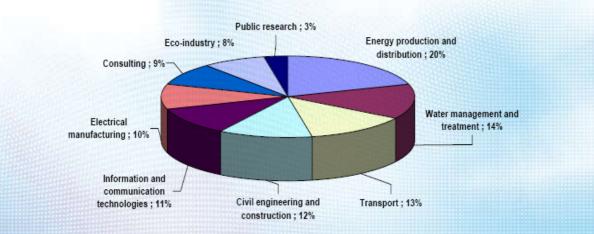
\* common with Grenoble INP - Phelma \*\* common with Grenoble INP – Génie Industriel

#### How to apply ?

Each year, Ense<sup>3</sup> welcome approximately 100 foreign students. If you wish to apply to Ense<sup>3</sup>, there are various possibilities : • To obtain a degree - as a regular student

- as a double-degree student
- To come as an exchange student
- To do an internship or master thesis in one of our laboratories

#### Where Ense<sup>3</sup> engineers work



#### Grenoble and Rhone-Alpes area : a unique scientific centre in Europe

• 2 poles of excellence for research and development: Minalogic (micro and nanotechnologies) and Tenerrdis (renewable energies).

• 2 Rhone-Alpes regional cluster on renewable energies and environment.

• A Carnot research Institute (Energies of the future) gathering Grenoble actors in the area of new technologies of Energy.

#### Meeting the needs of research and industry

Our engineering training strongly involves our industrial partners with a large part of practical training periods taking place within the companies. More than 10% of our master degree students carry on with a PhD taking advantage of the exceptional research environment of Grenoble with more than 750 researchers in the domains of energy and environmental sciences.

#### A training backed up with research

The link between research and training is a reality at Ense<sup>3</sup> therefore, the training of our engineers is highly backed up with internationally prominent research laboratories.

Grenoble

ENSE3

Ense<sup>3</sup> benefits from an exceptional research center: indeed, Grenoble is the second French area as regards Research & Development technology.

#### Research laboratories associated with Ense<sup>3</sup>

Ense<sup>3</sup> is in contact with a large number of research facilities which work on key domains such as Energy, Water and Environment. Laboratories are involved in the training of our engineers offering research projects, internships, a research based-course or a job.

At Ense<sup>3</sup> teacher-researchers work in one of 9 research laboratories :

- G2ELab : Electrical Engineering
- LEGI : Fluid Mechanics and Energetics
- Rheology laboratory : Materials and Flows
- 3S-R : Geomechanics, Civil Engineering and Natural Hazards
- LTHE : Water and Environmental Engineering
- LEPMI : Electrochemistry and Physico- chemistry of Materials and Interfaces
- GIPSA Lab : Images, Signal, Speech and Automatic
- G-SCOP : Design, Optimization and production
- SIMAP : Science and Engineering of Materials and Processes

#### **Key figures**

- 750 researchers
- 530 PhDs
- 250 industrial partners

#### Ense<sup>3</sup>, an international school

Ense<sup>3</sup> attracts talented students from all over the world and fosters diversity as a source of wealth and development. Graduates go on to work in business sectors that are naturally international.

Ense<sup>3</sup> provides its students with intercultural understanding and professional, intellectual and geographic mobility, both keys to successful careers.

Ense<sup>3</sup> has international academic partnerships with major universities all over the world and hosts approximately 100 foreign students each year as exchange student and 60 as regular students.

#### **Facts and Figures**

- 250 agreements with universi ties all over the world,
- 130 students spend an academic exchange or internship abroad,
- 100 foreign students hosted each year as exchange student,
- 60 regular foreign students,
- 30 nationalities.

#### International partnerships

Grenoble INP – Ense<sup>3</sup> participate in the following networks :

#### CLUSTER : 11 special partners across Europe

The CLUSTER Consortium (Consortium Liant des Universités de Science et de Technologie pour l'Enseignement et la Recherche) was set up at Grenoble INP's instigation in 1990 and now includes twelve leading European science and technology universities. The CLUSTER network facilitates high-quality teaching and research exchanges and cooperative ventures.

• **GE4 network** - network of 4 continents (Europe, United States, Latin America, Asia). In 1996, the GE4 network (Global Education for European Engineers and Entrepreneurs) was set up with the support of European industries and universities. Its main aim is to promote mobility amongst engineers and managers around the world.

• Rhone-Alpes in partnership with Ontario The Rhone-Alpes region has been working in partnership with Ontario in Canada since 1990 on joint ventures in technology, industry, environment, education and culture.

• CREPUQ : Quebec Universities exchange programme

#### Student life :

Around 30 associations dedicated to various activities : sport, events, parties are open to students. Above all, it is a great opportunity for students to meet like-minded people with similar interests and explore whatever avenues they wish.

Grenoble is a town with a large student population (60 000, around a tenth of the population), young and relaxed, cosmopolitan, with a healthy cultural and sporting life.

It is at the foot of the Alps and world famous ski resorts, 3 hours from Paris by **train, it is** a town in which you can feel the influence of Italy and the Mediterranean.

# Grenoble INP ENSE<sup>3</sup>

ECOLE NATIONALE SUPERIEURE DE L'ENERGIE, L'EAU ET L'ENVIRONNEMENT

Domaine Universitaire rue de la houille Blanche BP 46 38402 St Martin d'Hères cedex France Tel : +33(0)4 76 82 62 00 http://ense3.grenoble-inp.fr

Contact : international.ense3@grenoble-inp.fr Tel : +33(0)4 76 82 50 20 Paris

• Grenoble