Grenoble INP Ensimag | UGA

Grenoble INP

Ensimag

School of Engineering in Applied Mathematics and Computer Science

$$\frac{\partial V}{\partial t} + \frac{1}{2}\sigma^2 S^2 \frac{\partial^2 V}{\partial S^2} + \cdots - rV = 0$$

Public school of engineering

COMPUTER SCIENCE
APPLIED MATHEMATICS

One of Grenoble INP's 8 schools
Institute of Engineering and Management
at Université Grenoble Alpes

Member of the
INP Group

Founded in 1960 by mathematician Jean Kuntzmann, Grenoble INP - Ensimag was the first school to specialize in computer science and applied mathematics in France.

The school is based in the Grenoble area, a dynamic environment filled with both research laboratories and industries specializing in micro and nano technology, and science and technology for computer science and mathematics. In France, it is a pioneering site where public research reaches its zenith in the fields of mathematics and computer science (1 Turing prize, 4 members of the Academy of Science, 9 IUF).

Grenoble INP - Ensimag is a Grande École of Engineering in the INP Group. Ranked as one of the best generalist schools for digital technology in France, its renown stretches far beyond its home borders.

Interactive document
see more info by clicking on the links

CONTENTS

Grenoble INP - Ensimag
Acquire dual skills in **computer science** and **applied mathematics**

● Grenoble INP - Ensimag is at the heart of the digital revolution. Combining the study of applied mathematics and computer science, Grenoble INP - Ensimag trains talented engineers capable of contributing to technological developments, and creating and adapting to new innovations throughout their careers.

● The dual skill in applied mathematics and computer science plays a strategic role in fields as varied as energy, communications, finance, embedded systems, and security. Digital engineering makes it possible to design reliable, efficient tools for company, and to swiftly respond to market needs. Reactivity and agility made possible thanks to a solid education combining theory and practice, general education, and customized topical programs. With these dual skills, all of the business sectors will be at your fingertips!

#Virtual reality
#Artificial intelligence
#Embedded systems

#Big Data
#Smart objects
#Cybersecurity

#Engineering for finance
#Information systems
#Applied Mathematics

"Businesses in the digital sector are looking to diversify their teams with a better mix of men and women, to improve performance"

Female engineering!
Emilie Paillous, Grenoble INP - Ensimag engineer
Back-end developer @Fabernovel Technologies

A good student by nature, I enrolled in a program at a demanding and multi-disciplinary faculty (PCSI) in Paris to give me as many career options as possible. It was the experience of a university lecturer at Ensimag that showed me that computer science was about more than just writing code, and that this tool was found everywhere in our lives. That's what made me want to attend the Grande Ecole. I wasn't scared, but I did wonder if it was sensible. The old clichés are hard to shake off. People often say computer science is just about video games and for boys... But that's not true! And you can forget the image of the lone engineer spending all of their day in front of a computer... Today, I am a "lead developer", and produce apps for the general public while managing a team. Designing tools for people is enriching and very inclusive. I love it!

Teaching

1 single engineering degree accessible under student or apprentice status + **4 branches of specialization**

2 master's degrees with a wide variety of programs and specializations

26 double degree agreements

150 international agreements

1,200 Ensimag students

Research

150 university lecturers and external experts

8 research laboratories

Rankings

France's top school for Computer Science & Engineering (world top 100) in the Shanghai Ranking 2019

No. 4 in the field of Engineering and Technology in the QS World University Rankings

See all rankings

Networks

40,000 alumni from Grenoble INP across the world, including 9,200 Grenoble INP - Ensimag graduates

300 partner businesses including 11 members in the school council

1 sponsor for each class A business partner who supports students from the moment they join to the moment they are awarded their degree
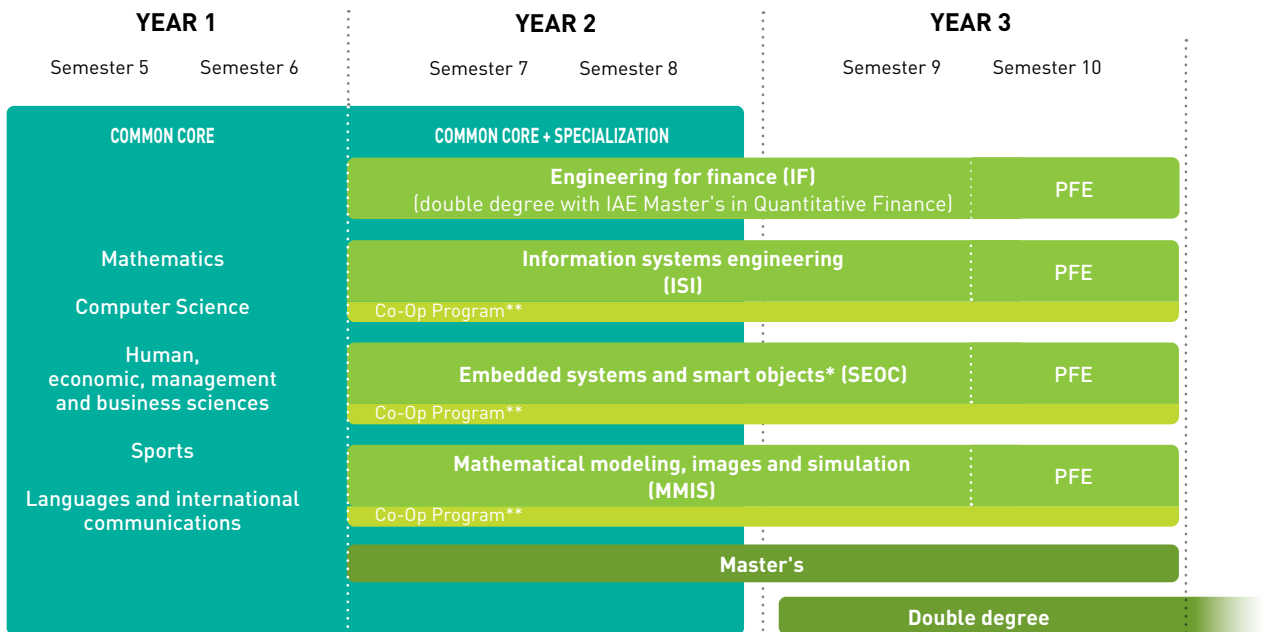
5 principles of education at Grenoble INP - Ensimag

- **Learning to learn**: to be able to adapt to new concepts and technologies thanks to a solid understanding of the core bases.

- **Being independent and choosing your own program**: to determine your personal and professional career path.

- **Getting to know and understanding technology**: through team projects and experience in real-life situations.

- **Understanding the international environment**: to join and manage multi-cultural teams.

- **Knowledge of the business world**: through internships, management and start-up courses, business conferences, etc.

Student status
A balanced and progressive program over 3 years

	YEAR 1	YEAR 2	YEAR 3
	Semester 5 — Semester 6	Semester 7 — Semester 8	Semester 9 — Semester 10

COMMON CORE (Year 1)

COMMON CORE + SPECIALIZATION (Year 2)

- Mathematics
- Computer Science
- Human, economic, management and business sciences
- Sports
- Languages and international communications

Engineering for finance (IF) (double degree with IAE Master's in Quantitative Finance) — PFE

Information systems engineering (ISI) — PFE
Co-Op Program**

Embedded systems and smart objects* (SEOC) — PFE
Co-Op Program**

Mathematical modeling, images and simulation (MMIS) — PFE
Co-Op Program**

Master's

Double degree

*Common course with Grenoble INP - Phelma
**Possibility of enrolling with an apprenticeship or professionalization (employee status) contract from the 2nd or 3rd year on

Year 1: Acquisition of scientific foundations. Preparation for choice of sector

Year 2: Specialization in a sector and Master's

Year 3: Ongoing studies in the same sector, then end-of-study project (PFE) and Alternative programs

Number of engineering program spots
INP common entrance examinations: 125 (MP), 10 (PSI), 10 (PC), 10 (PT)
INP preparatory courses: 25
Admission with DUT (French 2-year undergaduate degree), Licence (2nd or 3rd year of French 3-year Bachelor's degree): 55

DIPLÔME D'INGÉNIEUR CONTRÔLÉ PAR L'ÉTAT

Adrien Gregorj
Grenoble INP - Ensimag Engineer
Solution Architect @Deepomatic

In the second year of my engineering degree, I chose the Mathematical Modeling, Images and Simulation program because the courses offered fit perfectly with my professional career goals in computer imaging. In my third year, I completed my end-of-study project in a research lab in Okayama, Japan. I worked on analyzing trajectories and videos of pedestrians. Today, I work at a Parisian start-up developing a platform for producing computer-vision projects using deep-learning technology.

Jérémy MARITAZ
Grenoble INP - Ensimag Engineer
Business Manager @Modis

After my DUT undergraduate degree, I decided to enroll in an engineering program. I chose Ensimag because it is very well-known in the field of computer science and was one of the first schools to offer and recommend Co-Op Programs. The Co-Op Program made it possible for me to get my engineering degree (the same as the student status degree), while quickly developing my skills. This program is a real plus for moving forward your career.

Apprentice status (Co-Op Program)
An opportunity to learn at the school and in a business

YEAR 1		YEAR 2		YEAR 3	
Semester 5	Semester 6	Semester 7	Semester 8	Semester 9	Semester 10

COMMON CORE

alternating between 6 weeks of study and 6 weeks at a business

ISI	PFE
SEOC*	PFE
MMIS	PFE

Master's

*Common course with Grenoble INP – Phelma

Co-op engineering program

The apprentice engineering course leads to the **award of the same degree as with the student status**. Apprentices are both engineering students at the school and employees of a business. The first two years on a Co-Op Program are dedicated to acquiring scientific foundations through a common core. In the third year, apprentices join a sector of their choice.

Number of Co-Op Program Spots
Co-op engineering program: 25
DUT [French 2-year undergraduate degree],
2nd/3rd year Licence [French 3-year Bachelor's degree],
BTS [Advanced Technician Certificate] + honors in Art, Science and Technology

DIPLÔME D'INGÉNIEUR CONTRÔLÉ PAR L'ÉTAT

International partnerships

on *5* continents with **prestigious universities**

● **over 150 destinations** available to engineering students.

● Engineering students at Grenoble INP - Ensimag can enrich their engineering degree by adding an additional skill in sales or management, or with a joint degree abroad. In the latter case, the length of study is extended by one or two semesters. The different types of study abroad are:

• Exchange
• Double degree
• Internship or project

• Master of science
• Year off for work experience
• International government-sponsored work experience

Our partners include:

● **Europe**
  • Karlsruher Institut für Technologie, Germany
  • Politecnico di Torino, Italy
  • Imperial College London, United Kingdom
  • NTNU Trondheim, Norway
  • Universitat Politècnica de Catalunya, Spain
  • KTH Stockolm, Sweden
  • EPFL, Switzerland
  • Moscow Institute of Physics and Technology, Russia

● **North and South America**
  • Ecole Polytechnique de Montréal, Canada
  • Concordia University, Canada
  • Carnegie Mellon University, USA
  • Universidade de São Paulo, Brazil
  • UFRGS de Porto Alegre, Brazil
  • Universidad Nacional de Colombia, Colombia
  • Universidade de Chile, Chile

● **Africa**
  • ENSIAS Rabat, Morocco
  • Université Yaoundé, ENSP, Cameroon

● **Asia**
  • Kyoto University, Japan
  • National University of Singapore, Singapore
  • Hanoi University of Science and Technology, Vietnam

Grenoble INP - Ensimag, **an international school**

100% of students gain experience abroad

34% are international students

26 double degrees

150 international partnerships

64 nationalities represented

Jade Thiriat
Year off for work in Japan

I chose Ensimag in particular for the partnerships with Japan - studying there had been a goal of mine for a long time! So I took a year off to work in Osaka. Today, I am a gameplay programmer for Ubisoft.

Pauline Meric de Bellefon
International government-sponsored work experience with a business in New York

In addition to the professional opportunities this experience gave me, it was a very rewarding adventure. You learn a lot about yourself, your own culture and about France.

4 international programs
(taught in English)

● The goal of a master's degree is to offer all students from all countries high-level training in the fields of computer science and applied mathematics.

● Our master's degrees have the unique feature of being taught by Grenoble INP - Ensimag and jointly accredited at Université Grenoble Alpes with the IM²AG Faculty.

● Applicants should already have a Bac+3 [Bachelor's] degree. The program lasts 1-2 years. The program includes theoretical courses, internships and a presentation.

● Engineering students in their second or third year at Grenoble INP - Ensimag can also enroll in a master's program. Master's degrees are an exclusive gateway to preparing for a PhD thesis.

Master of Science in Informatics at Grenoble (MoSIG)

Artificial intelligence, Data science, AR/VR, Cloud infrastructure, Embedded systems, Software architecture, Interactive systems

Master of CyberSecurity (CySec)

Risk analysis and audits, Certification for security evaluation, Security of operating systems, Cryptology, networks, software and hardware, Security architecture, Secure and validated solutions

Master of Science in Industrial and Applied Mathematics (MSIAM)

Data science, Machine learning, Statistics, Advanced imaging, Modeling of complex systems, Signal processing, High performance computing

Master of Operations Research, Combinatorics and Optimization (ORCO)

Operations research, Graph theory, Combinatorial, modeling of complex problems, Societal and scientific challenges

Andéol de Quercize
MoSIG program

At the end of the first year of the engineering program, I chose the MoSIG option to study machine learning and data science in a second-year master's degree. Being able to study in English confirmed my choice, because not only did I meet students from all over the world, but I was also able to develop my English skills, which are essential for the business world. I made a lot of progress with this program, and even shared classes with already very experienced developers!

Master's in **Computer Networks for Business**

This degree offers a global understanding of telecommunications networks and technologies, with advanced teaching on the upper layers of networks, security and business network management. Its goal is to train specialists in computer science capable of designing the architecture for a business network, ensuring security, administrating systems, and maintaining network applications.

Number of Co-Op Program Spots
Computer Networks for Business Master's: 25

Professors actively involved in research

● **At Grenoble INP - Ensimag, professors are also researchers** at internationally renowned laboratories. Partnered with the CNRS or Inria, the laboratories of Université Grenoble Alpes form France's top research hub for computer science and applied mathematics.

● **Introductory program to laboratory research** (4MMIRL). This course allows motivated students to take part in a lab research activity in the second semester of their second year, in place of a classic course. Each student is supervised by a laboratory researcher and works one half-day a week on a specific subject, the results of which they present before a committee and in a written report.

To find out more about partner laboratories:
http://ensimag.grenoble-inp.fr/fr/recherche/laboratoires-de-recherche

From an engineering degree to a PhD:

● Engineering students can prepare a master's degree in parallel to their third year. This joint program makes it possible for them to continue their PhD studies.

Between 10% and 15% of graduate engineers from Grenoble INP - Ensimag choose this track, and the laboratories associated with the school receive almost 200 PhD students every year.

Vivien QUEMA

A junior member of the Institut universitaire de France, he works in the fields of both distributed systems (ex: clouds) and operating systems. His goal is to make these more efficient and robust.

Florence MARANINCHI

Director of the VERIMAG laboratory, her research work focuses on programming language and algorithms, compiler design, object-oriented modeling, and embedded systems design.

James CROWLEY

He directs the PERVASIVE project team at the INRIA's LIG laboratory. His work focuses on solutions that give ordinary objects the ability to detect, act, communicate and interact with human beings.

Emmanuel MAITRE

Director of the Maison de la Modélisation et de la Simulation, MaiMoSINE, he steers research work in applied mathematics on partial differential equations and their applications in biophysics and image interpolation at the Jean Kuntzmann laboratory.

Examples of reputed institutes and networks

Ensimag benefits from numerous partner networks in which Grenoble INP is involved. These networks structure research at a local, regional, national and international level, and facilitate the promotion of research results.

● **Multidisciplinary Institute in Artificial Intelligence (MIAI)** Grenoble Alpes is committed to leading high-level research in artificial intelligence, educating students and professionals, and supporting innovation in businesses.

● **University Network for Innovation, Technology and Engineering (UNITE!)** is an innovative project for educating engineers and developing European citizenship. This project brings together seven technical universities renowned for the quality of their training and research.
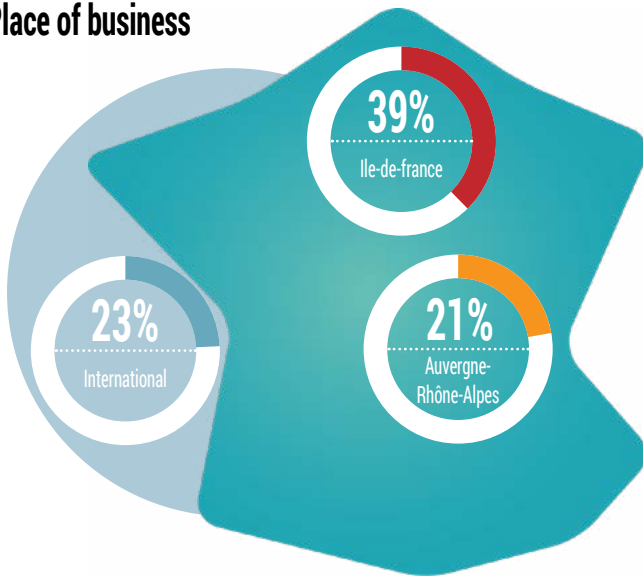
● CLUSTER: The CLUSTER consortium, created on Grenoble INP's initiative in 1990, counts twelve leading European universities in science and technology. The network enables high-quality exchange and cooperation in teaching and research.

● MINALOGIC: The Minalogic (MIcro NAnotechnologieset LOgiciel Grenoble-Isère Compétitivité) international competitive hub's goal is to give the French sector of micro and nano technology and embedded software a sustainable competitive edge in the field of electronics and software embedded on chips.

WHERE ARE OUR GRADUATES NOW?

Place of business

39%
Ile-de-france

23%
International

21%
Auvergne-Rhône-Alpes

€40 K/yr in France
€55 K/yr abroad
(average salary excluding bonus)

90% find employment within 1 month

86% of graduates sign an open-ended contract

96% Net employment rate (68% sign a recruitment contract before the end of their studies)

(2019 first employment survey data [2018 graduates])

"Ensimag gave me a general understanding of math and computer science which gave me lots of options at the start of my career."

Anthony Yong, Senior Quantitative Analyst @Bainbridge Partners LLP

I really believe Ensimag offers a very high-level education. For students who have chosen the "Engineering for Finance" track, Ensimag offers a triplet of skills in mathematics, computer science and finance which is extremely well-known in the industry. I think students who complete all of their studies at Ensimag have all the skills they need to succeed in their careers, whatever their ambitions.

Laura Medji, co-founder of Tracktor

Ensimag gave me a general understanding of math and computer science which gave me lots of options at the start of my career. The school's training is very solid and also very practical. The teaching team listens, the courses are well-constructed and rewarding, and it is one of the most well-reputed schools in the labor market! Also, in the third year of study, I did an exchange in Brazil, which was an extraordinary experience in many ways.

Grenoble, the capital of the Alps, is a city renowned for its outdoor activities, technological vibrancy, environmental focus, and sports and cultural infrastructure. Surrounded by three mountain ranges (Belledonne, Chartreuse and Vercors), it has a breath-taking landscape. The campus is one of the best in France and Université Grenoble Alpes was ranked as one of the top 10 most beautiful universities in Europe by Times Higher Education in 2018!

Studying in Grenoble offers you the chance to experience the cultural and artistic vitality of a city with one of the most active music scenes in France, where everything is accessible, from theater to contemporary art, and scientific, technical and industrial culture. Grenoble INP - Ensimag is just 15 minutes from the city center, in the heart of a stunning campus with 176 hectares of green space and almost 52,000 students.

A campus
just 15 minutes from the city center

Grenoble is one of the flattest cities in France, making it great for bicycling. In the city center, you can get around using the "Chronovélo" bicycle path. There are 320 km of bicycle paths in Grenoble and the agglomeration.

Grenoble, France's new
capital for bicycling

Sylvain Bouveret
University Lecturer at Grenoble INP - Ensimag

"Faced with the current environmental crisis, and aware of the role digital technology plays in the deterioration of our living conditions, it is now our responsibility to educate students on these issues, because they are the ones who will build the digital world of tomorrow and who will steer the environmental transition."

Responsible engineering

● Engineers today need to assume a dual responsibility in society, mastering the most advanced techniques for the community, while controlling the global risks they create.

● Grenoble INP - Ensimag is committed to a campaign of sustainable development and social responsibility, which is at the heart of its educational program, to develop a sustainable digital world:

Incorporation of aspects linked to sustainable development and social responsibility in the assessment of end-of-study projects.
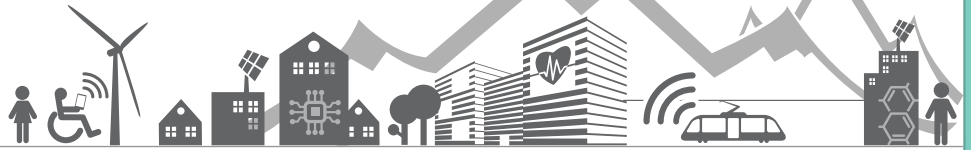
Training on issues linked to sustainable and ethical computer science.

Grenoble INP
Institute of Engineering and Management,
Université Grenoble Alpes

8 engineering and management schools • **9,000** students• **1,500** engineering degrees • **1,100** master's degrees in engineering and management • **230** PhDs awarded • **40** laboratories • **30** start-ups • **270** families of patents and software programs

Stimulate your mind

A privileged place for creation, exchange and culture

Student life area

The Grenoble INP center, Escape, Libraries, EVE

Student services

Reception, financial support, accommodation, catering, professional integration, social services, etc.

Sports and leisure

Some 30 disciplines offered at great prices

Association life

More than 100 associations and clubs

DIGITAL ENGINEERING

#Computer Science
#Applied Mathematics

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Grenoble INP - Ensimag

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France

ensimag.grenoble-inp.fr
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Grenoble INP
Institute of Engineering and
Management,
Université Grenoble Alpes

Public institution

INP Group

Awards degrees to 1 in 7 engineers in
France + 30 public engineering schools

GROUPE INP

Cti
Commission
des Titres d'Ingénieur