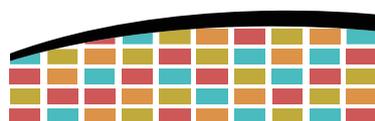
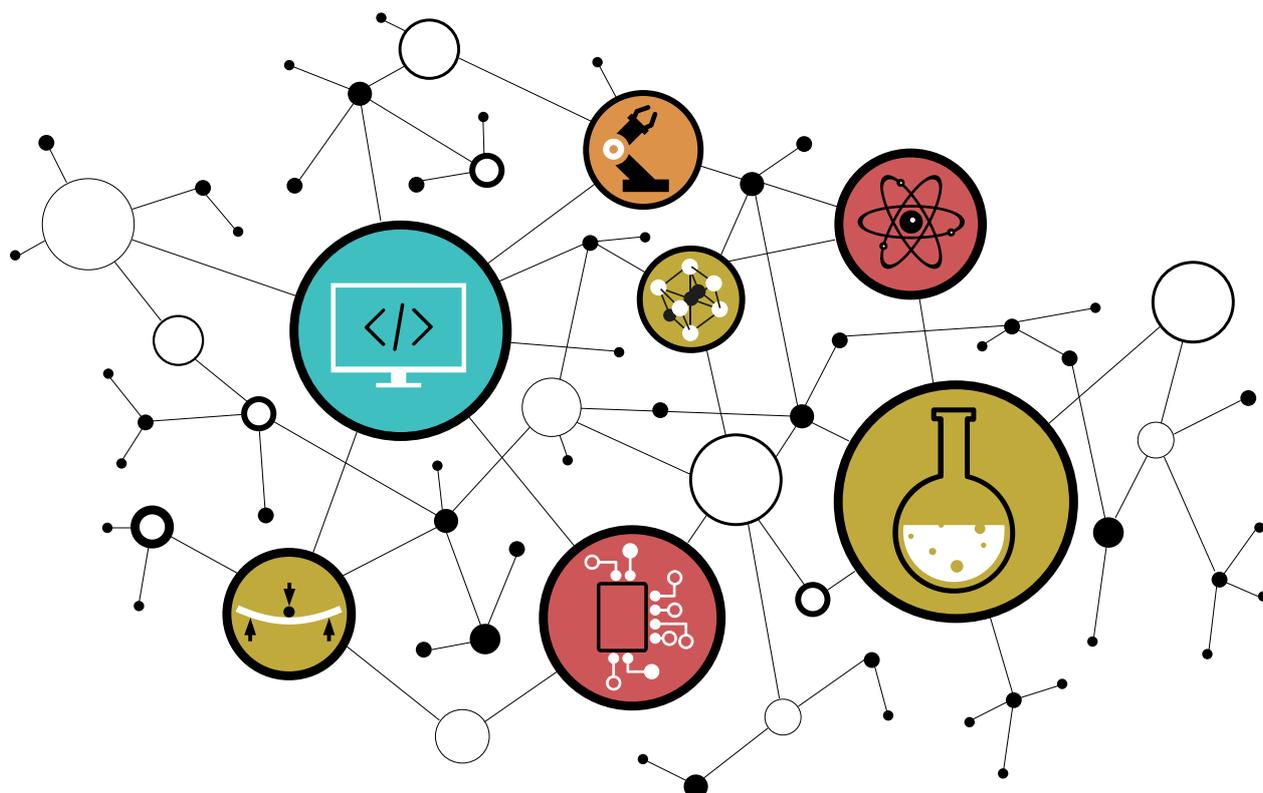


ENSICAEN your gateway to the future

# Graduate school of **ENGINEERING** and **RESEARCH CENTER**



**ENSI  
CAEN**

ÉCOLE PUBLIQUE D'INGÉNIEURS  
CENTRE DE RECHERCHE

[www.ensicaen.fr](http://www.ensicaen.fr)



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## ENSICAEN Research

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### Materials science

- Materials with notable electrical, magnetic or mechanical properties
- Materials designed for optoelectronics
- Laser materials
- Polymers
- Catalysts

### Chemistry

- Organic chemistry, asymmetric synthesis
- Molecules of interest for therapy and agro-chemistry, radiotracers
- Chemistry for sustainable development & energetic transition
- Spectrochemistry
- FT-IR, NMR and Raman applied to petrochemistry and pollution abatement

### Physics

- Nuclear physics
- Hot nuclei, exotic nuclei, energy and technological applications, nuclear imaging
- Ion interaction with solids
- Atoms, molecules, clusters, surfaces, condensed matter, radiation chemistry, radiobiology

### Electronics, Computer science

- Information engineering
  - Image processing & analysis
  - System modelling and control
  - Sensors and Instrumentation
  - Electronic devices
  - Failure analysis
  - E-banking and cyber-security
  - Industrial cooperation
  - A Comprehensive Professional Network
- 



# ENSICAEN graduate school of engineering and research center



**ENSICAEN - Ecole Nationale Supérieure d'Ingénieurs de Caen - is a national graduate school of engineering with an affiliated research center, established over forty years ago.**

ENSICAEN offers high-level education for Master's degree-level candidates, as well as for company employees, in specialized areas such as nuclear engineering, organic chemistry, biomedical engineering, secure transactions, embedded systems.

We aim to provide advanced knowledge of science and technology whilst also preparing creative leaders for top careers.

**Research is one of the school's distinctive features.** Ensicaen is host to six mixed-discipline, international research laboratories shared with the University of Caen Normandy and the CNRS (National Center for Scientific Research). ENSICAEN also hosts the Control Research Laboratory (LAC) and the CNRT (National Center for Technological Research).

**CIMAP** : Ions, Materials and Photonics Research Center

**CRISMAT** : Crystallography and Materials Science Laboratory

**GREYC** : Caen Research Group in Digital Sciences

**LCMT** : Molecular and Thio-Organic Chemistry Research Laboratory

**LCS** : Catalysis and Spectrochemistry Laboratory

**LPC** : Laboratory for Particle Physics Research

As a renowned member of the international scientific community, Ensicaen is a place where research and education combine to guarantee high-quality teaching programmes for its students, and providing them with substantial access to technological innovation.

ENSICAEN is located at the heart of "Campus 2", the science campus of Caen. Other laboratories like CYCERON (Neuroscience and medical imaging), GANIL (National heavy ion accelerator) and the University laboratories are located close to our main building. We are also situated near to an industrial technopolis including NXP, Presto Engineering, France Telecom R&D, as well as the University Hospital and one of the region's cancer institutes.

## Links with industry

ENSICAEN prepares highly trained engineers in competitive courses with extensive experience of the industrial world. A substantial, dynamic network of partners has developed around the courses.

Our partnerships with leading industrial groups and foreign universities throughout Europe, America and Asia allow our students to keep up to date with state of the art innovative technologies.

ENSICAEN's industrial activities :

- improve employment and internship opportunities for its students
- promote key ENSICAEN technology transfer
- create a broad network of scientific experts
- encourage and develop innovation
- provide technological advice
- promote industrial partners' clubs in cyber-security, energy, instrumentation
- offer adult education

## Research & Development : Facts and figures

**650 staff**  
ENSICAEN and University of Caen professors, CNRS and CEA researchers, engineers, technicians and administrative staff, as well as PhD students

**22 patents**  
obtained in the last 5 years

**350 scientific publications**  
every year



# Engineering courses and QUALIFICATIONS

ENSICAEN is a public institution, authorized to award the ENSICAEN Graduate Diploma of Engineering (equivalent to a Master's degree) which is acknowledged by the French National Engineering Accreditation Commission (CTI).

In addition to the scientific content of the course, lectures in complementary subjects such as marketing and management provide students with a useful overview of an engineer's working life. Students also have the opportunity to discover a variety of different languages : English, German, Spanish, Portuguese, Japanese, Chinese and, of course, French (as a foreign language, for international students).

The school is divided into 5 departments, each leading to one of 7 engineering diplomas, including 3 by apprenticeship. The apprenticeship courses are unfortunately not presently accessible to overseas students.

## The Science Departments in detail



### Electronics & Applied Physics

The training provided at ENSICAEN prepares students to become R&D engineers capable of providing innovative and effective practical solutions.

Students reinforce and apply their knowledge of fundamental mathematics, physics, measurement and signal processing in order to design electronic systems including sensors, electronic signal conditioning, digital processing and data transmission.

Students choose to specialize in one of the following three options :

- Nuclear engineering,
- Advanced instrumentation,
- Signal, automatic control, telecommunications & embedded systems.



### Computer Science

Our course aims to provide future computer engineers with a solid grounding in software architecture.

The core training is based on technical knowledge (programming paradigms, algorithms, software engineering and computer modelling), practical know-how (software development, data modelling, systems security and systems interaction) and the essential "soft" skills necessary for any well-rounded engineer (team work, project management, public speaking).

Students choose to specialize in one of the following two options :

- Digital imaging, sound processing and machine learning,
- E-banking and cyber-security.



### Materials Science & Chemistry

Students following this course become "green" engineers with deep knowledge of organic chemistry or petrochemicals, as well as being highly skilled in the development and application of new structural materials or materials for energy.

They are thus capable of providing practical solutions to the challenges confronting us in the 21st century, notably those concerning energy (production and storage, as well as biofuels), sustainable development (green chemistry, carbon footprints) or population health issues (new therapeutic drugs).

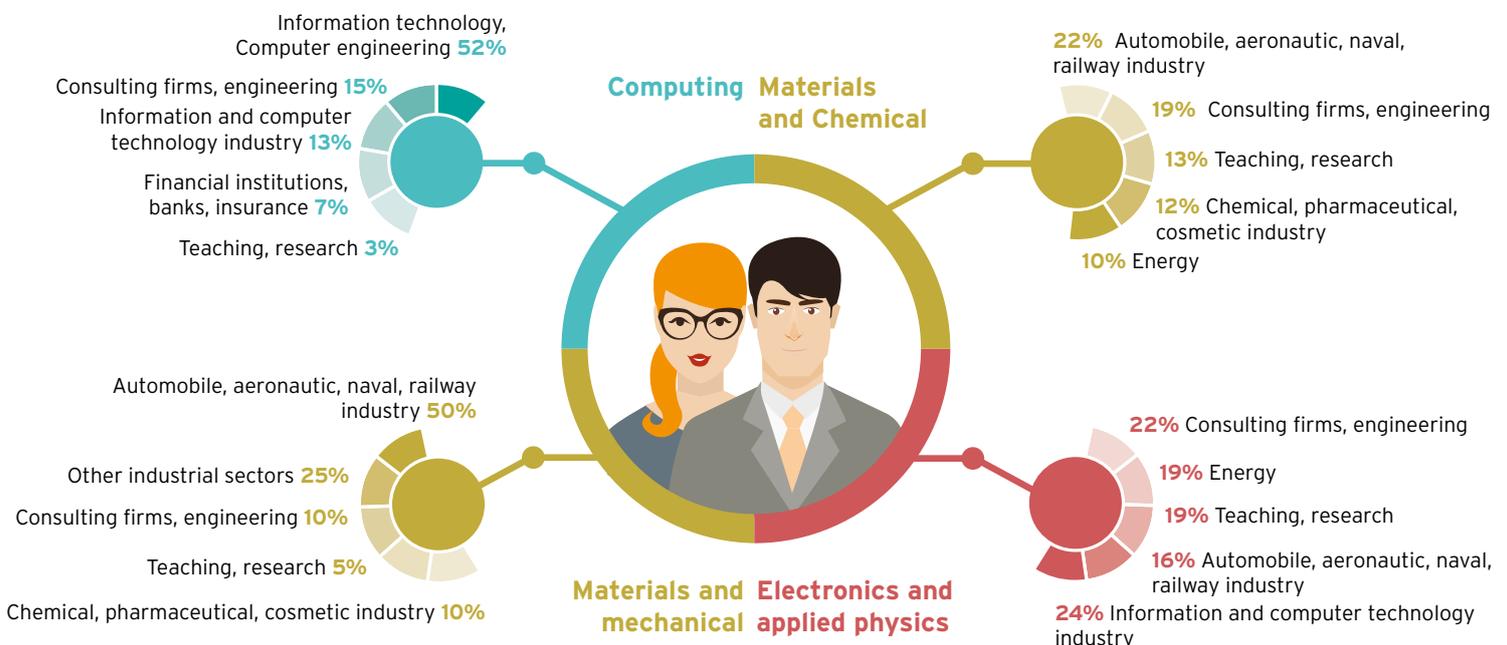
Students choose to specialize in one of the following two options :

- Analytical chemistry and organic synthesis, petrochemicals and oil refining,
- Materials for energy, structural materials, green chemistry.

# Employment of our GRADUATE ENGINEERS

Graduates from ENSICAEN find a wide range of job opportunities, either in business or in academic research, in branches such as aeronautics, electronics, the railway and

automotive industry, the nuclear industry, pharmaceuticals, cosmetics, petrochemistry and the chemical industry and cyber-security...



# Research Master's and specialized Master's DIPLOMAS

Students in their final year of a Master's degree can also obtain Research Master's diplomas (in conjunction with the University of Caen Normandy).

## Electronics and Physics specializations :

- Nuclear, Atomic and Collision physics
- Electronics, electrical energy and automatics

## Computer Science specialization :

- E-banking and cyber-security

## Chemistry specializations :

- Materials, Nanoscience and Energy
- Organic chemistry ; environmental catalysis and sustainable development

A non-scientific Master's diploma course is also available in Management and Business Administration.



Our courses in detail :

[livretpedagogique.ensicaen.fr/pages/index.php](http://livretpedagogique.ensicaen.fr/pages/index.php)



Two specialized Master's diplomas (Mastère Spécialisé®) are offered by ENSICAEN :

- Image Analysis & Processing, Video & Machine learning,
- E-banking and Secure Transactions.

These one-year courses, following the Master's degree, include taught theory, personal research in a business environment, and the presentation of a professional thesis.

## International ADMISSIONS

We want to make the international admissions process as smooth as possible for students applying to ENSICAEN from outside France, particularly those nominated by our partner institutions.

If you are an international student looking to study at ENSICAEN, there are several ways in which you can join us :

As an **exchange student**, as part of your qualification at another higher education establishment, for a minimum of one semester, with credit transfer.

As a **double degree student**, in order to obtain the ENSICAEN Engineering diploma (entry to the second year of our course, equivalent to the 1st year of a taught Master's degree), as well as the qualification from your home university. The student undertakes 3 academic semesters at ENSICAEN and a 6-month professional internship in industry.

As a **fully enrolled ENSICAEN student**, in order to obtain the ENSICAEN Engineering diploma (initial entry at final-year Bachelor's degree level, either based on academic records & interview OR after selection via the "CCP" Concours Communs Polytechniques). The engineering diploma is then awarded after three years of successful full-time study.

## French engineering STUDIES : 5 years

### Baccalauréat

1 Preparatory classes

2 Preparatory classes

3 Engineering schools

4 Engineering schools

5 Engineering schools

Graduate Engineering Degree

Phd

The french engineering education system includes 2 steps :

**2 years** in preparatory classes in selected high schools where students prepare the national competitive exams for admission to the 1st year of engineering school (level : Baccalaureat +2 years).

**3 years** in Engineering institutes to obtain the engineering diploma.

- The first year is equivalent to a Bachelor degree.
- The engineering diploma or Master is prepared during the last two years.

Possible direct admission to the 4<sup>th</sup> year after the baccalauréat for selected students of Universities after their undergraduate studies in Science.



# Studying ABROAD

Studying abroad may be one of the most beneficial experiences any student can enjoy.

International experience not only provides the opportunity to improve language skills and cultural awareness, it can also help students gain a new perspective on their chosen subject area and higher education in general. Time spent abroad brings personal development and maturity, and more specifically, open-mindedness, flexibility and resourcefulness.

These are all qualities required to build a career in a worldwide industrial context, so mobility is an integral part of the engineering course at ENSICAEN. To this end, our courses include lessons in English and in at least one more foreign language (French as a foreign language in the case of foreign students).

ENSICAEN helps students in their mobility project by developing a wide network of foreign partner institutions and by participating in International and European exchange programmes (ERASMUS+, PEE-BCI, BRAFITEC, MEXFITEC, ARFITEC). ENSICAEN is also a member of Campus France ([www.campusfrance.org](http://www.campusfrance.org)).

**70 agreements** for study exchange with foreign universities in over **20 countries**.

**9 double diplomas** available.

Final year lectures are taught in English from September to February (one semester = 30 ECTS).

## ENSICAEN overseas partners



## FEEDBACK from our students

**David ATLAN**

**Internship in United States, semester in China**

After two years of "classe préparatoire" in Paris, I chose to join ENSICAEN for its expertise in Electronics and Applied Physics. In addition to its particularly interesting teaching programs, I discovered within ENSICAEN a wide range of opportunities to study abroad.

Indeed, after an internship at the laboratory in UC Berkeley, California, I had the possibility to follow a fabulous student exchange program at Huazhong University of Science and Technology (HUST), in China. I greatly appreciated these stays, for the quality of education in Caen, for the warm welcome that I received abroad, for the people that I met, but especially for the variety of experience that I acquired throughout these three years.

**Ricardo BARBEDO**

**Double degree program with UnB - Brasilia, Brazil**

I chose to study at ENSICAEN after learning about the double degree program that it has with my university in Brazil. Looking back, this was a choice that changed my life.

I studied at ENSICAEN for the final two years of the Electronics Engineering course. In this period, I learned a lot with the school's hands-on classes and with its close contact with industry. It was thanks to this proximity to the business world and the long internship period that I found my first job at a big semiconductor company.

To summarize, I recommend ENSICAEN wholeheartedly if you are an international student looking for a new experience. Having a double qualification from two different countries opened up many opportunities across two continents. Nevertheless, even without that, the personal development that comes from experiencing new environments makes everything worthwhile.

# Student life in CAEN NORMANDY

## Caen, in Normandy

Traditionally known for its history and culture, Caen is an attractive place to study, located between land and sea and only 2 hours from Paris. At the heart of a metropolitan area of over 300 000 inhabitants (Caen and its surrounding area) including 30 000 students, Caen is close to many major historical and cultural sites including the D-Day landing beaches, the Memorial for Peace and the Mont-St-Michel.

Caen is an attractive city for all kinds of sporting activities (on land and on water), its art galleries and historical museums, as well as music festivals. The area also offers :

- theaters, concert halls, cinemas, shopping centers,
- a football stadium, home to the Caen national League 1 team.

Caen is a city of innovation and challenge, committed to the high-tech industry and offering higher education and research in all the major subject areas.



## Student life

At ENSICAEN, we encourage students to enjoy fully all aspects of student life, including active participation in one of the 50 clubs and groups. Thursday afternoons are set aside for extra-curricular pursuits, and with activities to suit everybody's interests, you're sure to find something that's right for you : sports clubs, humanitarian action groups, science clubs, business clubs, drama and arts groups, and much more.

Taking part in any of these activities can boost your personal and professional development, as well as broadening your horizons through trying something new. Enrich your teamwork and leadership experiences, and you may even want to take the opportunity of assuming an organizational role, taking responsibility for a club or group.

ENSICAEN is located at the heart of "Campus 2" where you can find university restaurants and accommodation, as well as many other institutions : the Science Faculty of the University of Caen and the ESITC Caen (Graduate school for civil engineering). "Campus 2" is also connected to the city center and the train station by an extensive tram and bus network.



### Useful links

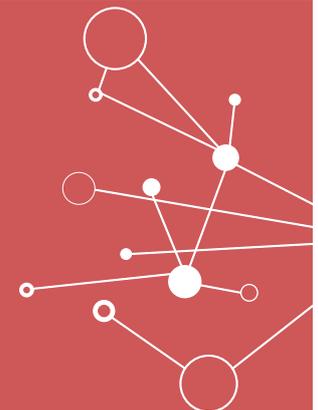
#### Laboratories

[cimap.ensicaen.fr](http://cimap.ensicaen.fr)  
[crismat.ensicaen.fr](http://crismat.ensicaen.fr)  
[greyc.fr](http://greyc.fr)  
[lcs.ensicaen.fr](http://lcs.ensicaen.fr)  
[lcmr.ensicaen.fr](http://lcmr.ensicaen.fr)  
[lpc-caen.in2p3.fr](http://lpc-caen.in2p3.fr)

[ensicaen.fr/international/](http://ensicaen.fr/international/)

#### Our courses in detail :

[livretpedagogique.ensicaen.fr/pages/index.php](http://livretpedagogique.ensicaen.fr/pages/index.php)





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