REVEALING ENGINEERS SINCE 60 YEARS



FRENCH GRADUATE SCHOOL OF ENGINEERING · RESEARCH INSTITUTE



04

An outstanding environment

06

Become a Grande École engineer

08

Eight good reasons to choose ENIB

10

Industry-based training

12

International perspectives

14 Enjoying student life

OUR VISION



16 Graduate employment

18

Excellence in research



The École Nationale d'Ingénieurs de Brest, at the tip of the Brittany, offers an ideal environment to prepare for your future: conducive to study and with a rich and stimulating student culture. he right college for an active role in your education. A college where technological sophistication goes hand in hand with humanism through shared values of respect, equality and solidarity, giving a feeling of well-being.

A college where you can develop constructive critical thinking and an open mind, bringing together science and conscience.

A college where you can become responsible and independent, developing a commitment to society in which excellence becomes professional relevance.

A college where you become a unique engineer with multiple skills, sought after by industry, and can prepare for a rich and fulfilling career.

Here, since 1961, as part of the group of Écoles Nationales d'Ingénieurs, ENIB has trained more than 4300 generalist engineers ready to work in on-the-ground situations and open to others, to business, to society and to the world. Further recognition of the École Nationale d'Ingénieurs de Brest and a sign of its dynamism have been shown by its association with the Institut Mines-Télécom since 2014.

So, prepare for your future in the right place, prepare for your future at ENIB...



An outstanding environment



With its panoramic views over the Iroise Sea, the ENIB campus contributes to student fulfillment and satisfaction with the college. This is an area of outstanding natural beauty, offering a broad range of outdoor activities, from coastal walks to water sports. It is also one that favors well-being simply by providing a high quality living environment.

> A campus on the Bay of Brest, in the heart of the Brest-Iroise Technopole

Over 6000 people work in the technopôle, including 900 lecturer-researchers and 700 administrative and technical personnel who contribute to the education of 2000 students from over 50 different countries, making the site an exceptional location for cultural exchanges.

Residential quality, the key to good living Student residences, individual houses, apartments, new or old, private or public... There is a wide range of housing available to rent.

Proximity is the key word: closeness and access to services and amenities and above all, an exceptional natural environment. By bike, by car, by bus or by tram, and soon by the first urban cable car in France... There are many means to get around easily in the city of Brest.

► By concentrating engineering schools, research centers and high-tech companies on the same site,

the Brest-Iroise Technopole promotes innovation and job creation. Almost 100 companies are located here, with large groups such as Thales, Dassault Systèmes and Ifremer, internationally renowned companies like Cabasse, dozens of SMEs, but also many so-called "incubating" companies currently being set up, or recently established.

► Because you learn better when you're feeling good, ENIB makes every effort to provide an environment conducive to studying for your future profession

- > Advanced educational equipment
- > Halls of residence, college cafeteria, library, student center
- > Reception service for international students
- > Internship-Careers service
- > Access to the college by bus and tram
- > Train station and airport approx. 30 minutes from the campus.

Day-to-day

We pay particular attention to the quality of the working vear. the school invests in high-performance engineers train on the same production tools as those they will later encounter in industry. The college is equipped rooms, a documentary resource center. a three language labs and computer rooms with extended opening hours. Several rooms are reserved for team work and conducting independent projects. In addition, because at ENIB we believe that students need to find a balance between study and their personal lives we ensure, right from the first year, that students have sufficient free time. That's why afternoon is free time.







Become a Grande École engineer

The École Nationale d'Ingénieurs de Brest (ENIB) is a state college of higher education, located in Brest and accredited by the CTI, which trains generalist engineers in five years for professional vocations in the fields of electronics, computing and mechatronics.

► A five-year progressive curriculum to become an engineer

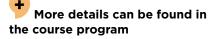
→ A two-year integrated preparatory program to teach students the fundamentals in the scientific, technical, social and linguistic aspects and to discover, directly after completion of the baccalaureate, course subjects related to their future profession. It consists of the first four semesters (S1 to S4) and the first two intersemesters (IS1 and IS2).

• Are you interested in a career in engineering?

ENIB gives you the opportunity to embark on this adventure by increasing your chances of success and by taking time to help you develop and hone your career project. The engineer program is open to students with a baccalaureate or two years of postbaccalaureate education. The program is entirely organized by semester and includes 10 semesters (S1 to S10) and 3 intersemesters (IS1 to IS3). Thanks to this organization, the school also offers a January entry date for the baccalaureate level. → A three-year engineer program, allowing students to specialize according to their individual career projects. On four occasions, students can choose an optional course among several on offer, allowing them to explore one of the areas of interest in the program and can establish their choice or change it though to the many internship opportunities. It is composed of the last 6 semesters (S5 to S10) and the last intersemester IS3.

> The college offers 135 different training paths (courses, projects, internships...) allowing the future engineers to build their individual professional profiles and to steer their studies towards a wide range of engineering careers.

→ An engineering college does not teach only science and technology: courses in human sciences (languages, expression and economics) are also taught, as well as modules of general interest (theater-based public speaking, workplace first aid...) during the intersemesters.







► Teaching at ENIB is based on a model firmly oriented towards business

Traditional teaching, with lectures/tutorials/practical work, prepares students for internships in France or abroad. Tutorials, practical work and projects are always done in small groups to encourage exchanges between students and teachers. Where it is deemed necessary, students can have individual assistance.



Careers

→ Information and communication systems:

aimed at all digital sectors of industry (systems engineer, networks, software development, specific applications, embedded computing...)

→ Research and development :

concerns all the professions contributing to the emergence of new products (research engineer, design and development engineer, product designer, project manager...)

→ Industrial activities:

involves all the professions related to the life cycle of the product (production engineer, industrialization methods, quality engineer, product developer, project manager, consultant, entrepreneur...)

> Opportunities & sectors of activity

- Electronics
- Space aeronautics
- Industrial computing
- Telecommunications
- Transportation
- Energy
- Specialized equipment/machines
- Environment
- Automotive
- Finance
- Naval
- Materials/Metallurgy
- Insurance/Banking





Eight good reasons to choose ENIB

Becoming a generalist engineer means gaining engineering culture because, in addition to having technical and scientific skills, ENIB engineers carry out their activities with respect for human life, the environment, and for collective social well-being.

Intersemesters: an original learning model, unique in France

The courses at ENIB are directly linked to its values of humanism, open-mindedness, societal commitment and professionalism: unique, mandatory modules, taught to all students during the intersemester in January between two academic semesters.

► Self expression

develop communication skills through workshops including theatre, science and technology in the media, video clips, radio interviews, writing workshops...

Managing people

learning to live with others and their differences, workshops on disability diversity, gender diversity, cultural diversity, team management role playing, labor law, marketing, social and solidarity economy...

> Engineer and citizen

learn general culture for the 21st century, workplace first-aid certificate, intergenerational meeting workshops with shipbuilding workers, tutored project (caring for hospitalized children, organization of disabled sports events...).

2 Close contact with companies from the first year of training

ENIB trains engineers from straight after the baccalaureate so that they can choose and aim for a particular professional field. The first internship takes place in the second year during intersemester 2. Enterprise Day, professional interviews, career round tables, posting of internship and co-op offers are common features of our students' lives, allowing permanent contact with the business world.

3Student guidance throughout the program

Along with sixty permanent teachers, our Business relations, Student services, International relations and Communication departments are available to accompany you and guide you in your efforts toward your career goals (finding a scholarship, help with your search, foreign language practice, assistance with periods abroad, personalized counseling...). All members of the teaching staff work for your satisfaction with your studies.



4 Oranization by semester: a strategy for success

The program is organized entirely in semesters. Each semester of study is offered twice in the same academic year: a fall session in September and a spring session in February. This is why recruitment is possible in semester 1 in January at the baccalaureate level. Lessons take place in small teaching groups, with a maximum of 36 students in lectures and tutorials, 24 in laboratories and 12 for some practical work, thus facilitating teacher-student interactions. An adaptation year is proposed to students with a STI2D (technology and sciences for industry and sustainable development) baccalaureate who follow specific courses during the first two semesters of their program. This is also the case for students with a BTS or DUT (two-year technical college degrees) who join ENIB in the 3rd year. Their integration into the normal structure is part of a step-by-step process.



5A supportive alumni network, Close to the college and its students

Created in 1961, ENIB has awarded degrees to more than 4300 engineers in France and in more than 60 countries worldwide. ENIB engineers are constantly involved throughout student training in conferences, forums, round tables, etc. They are also available to guide students in their search for internships and jobs, through coaching and contacts with businesses.

6 A grande école on a human scale

The flexibility and reactivity of the teaching and administrative staff allow the realization of very ambitious student projects. Because ENIB is a state engineering college of the Ministry for Higher Education and Research tuition fees remain low: 610 Euros for the year 2015/2016. Free education for scholarship students.

A pleasant working atmosphere: striving for high performance without competitiveness

There are no selective tests at the end of the integrated preparatory program, but a support network for students who desire it: thematic tutorials are offered by students on the engineer program. This approach favors the success of all students, in a spirit of emulation without competition.

Natural surroundings and facilities that enhance students' quality of life

ENIB makes every effort to provide an environment conducive to training for your future profession: advanced educational equipment, language labs, halls of residence, university cafeteria, library, voluntary associations centre, student common room, access to the school by bus and tram, train station and airport approximately 30 minutes from campus.





training oriented toward

industrv

Industry-based training

The generalist and multidisciplinary program at the ENIB allows students to address and solve real technological problems linked to the design and manufacture of systems and services in a large number of industrial activities.

Strong company involvement

Throughout the engineering curriculum, businesses are involved in the ENIB program: Thales, Alcatel-Lucent, DCNS... They are present in the college on every level. Through their participation in various actions, professionals:

- → Host students within companies
- ➔ Organize lectures about careers
- ➔ Prepare students for job interviews
- → Take part in "Enterprise Day"
- ➔ Present different careers in engineering

ENIB is committed to developing partnerships with businesses and maintains solid ties with industry thanks to its many collaborations.

Exposure to on-the-ground working conditions is an opportunity for students to

learn to manage teams or coordinate projects. Thanks to the internship periods, businesses are offered an excellent chance to see the potential of our students and to take part in the training of their future employees.

> An essential professional experience

15-month internship during the curriculum allows young ENIB engineers to be immediately operational as soon as they finish college. From the first internship as an operative to the internship as an engineer, the future engineer builds and finalizes their career project. All internships can take place in France or abroad.

- > Internship as an operative, 4 weeks
- > Internship as a technician, 8 to 12 weeks

> Language Skills Internship, 8 to 12 weeks, undertaken in an English speaking country, replaces the Technician internship. The internship need not be of a technical nature.

> Internship as an assistant engineer, 14 to 20 weeks

> Internship as engineer, 20 to 25 weeks This internship represents a pre-employment position for the majority of students.



The teaching staff and the business relations office undertake to maintain and develop our network of industrial partners, providing a bridge that our students can rely on, thus saving valuable time with the necessary procedures.

Cooperative education program, a springboard to employment

For students, cooperative education, alternating study with work in a company is an excellent path to professional insertion. The future engineer is highly operational and knows the specificities of the professional world and the host company. Therefore, the majority of co-op students are offered a job before the end of their contract.

ENIB offers one year of cooperative education in the 3rd year of the engineer program, in the form of a professional training contract. The student signs a fixed-term contract and becomes a company employee.

The projects entrusted to the engineers during their professional training contract are consistent with their academic training. Supervised in the company by their co-op tutor and accompanied at ENIB by their teaching tutor, the future engineers complete their technical know-how, and acquire *in situ* professional skills.

The minimum remuneration is equivalent to 80% of the statutory minimum wage (SMIC). It may be higher depending on the company's collective agreement. Employees on professional training contracts receive the same benefits as company employees.



The partner companies are engaged in diverse activities covering all the fields studied at ENIB: electronics, computing and mechatronics. They represent numerous sectors, such as computer engineering service companies, manufacturing industry, metallurgy, transport, automotive, aeronautics, defense as well as banks, higher education, health...

Partner host companies:

- → Large business groups: Thales, DCNS, Dassault Systèmes,
 - EDF, Crédit Mutuel Arkea...
- → SMALL AND MEDIUM ENTERPRISES: Elomobile, IRIS RFID...
- → VERY SMALL ENTERPRISES: Diateam, Meteo Strategy, Open Océan...

The rhythm of cooperative education (short or long)*

is set by the company. Outside of the training periods at the college, the employee is in the company. Two starting dates are possible: one in fall and the other in spring.

*Short alternance: 2.5 days at ENIB and 2.5 days at the company for 2 semesters. *Long alternance: 7 weeks at ENIB and 7 weeks at the company for 2 semesters.



International perspectives

For the ENIB, broadening one's horizons is another major advantage for future engineers. It contributes to their personal and professional enrichment, and opens wider opportunities for success.

► Going abroad, a clear advantage for professional success

In the era of globalization, ENIB encourages its students to show more curiosity and encourages their openness to international opportunities. This is why all students gain some experience of living abroad during their studies. This is an excellent opportunity for them to discover other cultures and improve their level in foreign languages.

Our students get the benefit of generalized international experience and an enriching multicultural environment! Everybody goes abroad at least once during their studies.

►ENIB has partnerships with universities throughout the world

- → network of partner institutions in 17 different countries
- more than 40 cooperation agreements with foreign institutions
- participation in international networks and programs: fitec, Erasmus+

► Gain work experience abroad

Periods can be spent abroad at different points in the program and take different forms

- → an academic semester in
- a partner institution
- ➔ double degree program in Germany, Quebec, Argentina, the Netherlands or Sweden
- ➔ internships in businesses or university laboratories

► Two examples of double degree programs

The double degree in Germany at the Ulm Hochschule:

The curriculum lasts 3 semesters. The internship as an engineer occurs during the second semester of the 4^{th} year.

A passport for

employment

The double degree in Argentina at the Faculty of engineering of the National University of Cuyo:

The curriculum lasts 2 semesters and the engineer internship is carried out at the end of this period.

Double degree applications are made at the end of the 3rd year.





► International relations office: A real bridge for our students

International relations office: Every effort is made to find funding for student stays abroad. Our teams help the engineering students to prepare their international project and offer personalized guidance:

- → assistance with obtaining mobility grants
- \rightarrow advice in choosing the most suitable program

> Broaden your horizons in France

We strongly encourage our students to study a second foreign language.

Two modern languages: mandatory English and a chosen second language: Spanish or German.

Courses in English have a dual objective

To encourage and support international mobility and maintain the level of English required to obtain the ENIB engineering degree. It is essential to master English, which is the working language in large businesses. Level B2 (with a required minimum level of 785 in the TOEIC) fluency in English is required to obtain the ENIB engineering degree.

A multicultural environment thanks to the presence of many international students who come as part of bilateral exchanges in engineer education.

Louise Piveteau, class of 2011 ouise Piveteau started the first semester of her 5th year of study with an internship at the Facultad de Ingenieria in Argentina.

"That way, I could acclimatize to the country and the language, to the work methods and the culture. During the second semester, I took the same courses as the Argentinean 5th year. Once the exams were validated I obtained a double degree: Generalist engineer from ENIB and Industrial Engineering from the University of Cuyo. I came back to France and looked for my first job, as well as lessons in Argentinean tango...

I discovered the possibility of doing a double degree in Argentina during the welcome speech given by the ENIB Director. I knew straightaway that this was what I wanted to do and I worked for four years towards this goal. Living and working abroad is a unique adventure that is unexpectedly rich and rewarding."



Enjoying student life

more details at enib.fr

Participating in community life means learning to complete a project and take responsibility, but also to communicate, to manage a team and to focus energy; in a nutshell it means developing an entrepreneurial spirit. The associations are the ideal context for opening up to others and developing your talents in every domain.

> Participating in College Life

College is a place to develop your knowledge and technical capabilities, but also your personal potential. Student associations, as an adjunct to studies, allow engineering students to become immersed in the dynamics of the school and to acquire the social skills that are often critical when looking for employment. ENIB encourages student involvement in the various activities of the college.

> Community life revolves around a central association: the Student Office, or Bureau des Elèves

A genuine catalyst for community life at the ENIB, it give a rhythm to the daily lives and extracurricular activities of students in the big ENIB family. The BDE organizes the extracurricular activities

available to students: **sporting events, parties, galas and the festive welcome weekend (to welcome new students).**

It runs the student center and the student common room and coordinates all the clubs that are to some extent small associations, but which depend directly on the BDE.

Achieve your potential through the associations and clubs

ENIB has a very rich social life around its associations and clubs. Seven student associations and almost 25 clubs are organized around the BDE, offering **many sporting, cultural, leisure or even artistic activities:** games, music, photo, video, etc. A good way to express yourself, follow your interests or to discover new ones!

Thursday afternoons are free time to allow students time for sporting activities and to participate in training sessions and sports matches. This time allows each student to get involved in the many sports, humanitarian, cultural and technical associations...



Thanks to the proximity of the ocean, many nautical activities are possible: diving, sailing, surfing and other board sports, while the ENIB Objectif Large association takes part in the student sailing championship.

> The Sports Office offers many sporting disciplines throughout the year: rugby, football, volleyball, badminton, basketball, diving, sailing... It organizes the screening of matches and competitions in the student common room. Each year, the association organizes a ski trip.

> ENIB Street challenge!

This event brings together students from all the graduate schools in Brest. This non-stop sports day has emerged as a key event at the end of the school year in the eyes of the student engineers, thanks to its fraternal, convivial atmosphere.

> Active social life of the associations

Do you dream of taking part in the **EDHEC yacht race?** The Objectif Large association will support you. If you want to experience a student competition, the ARENIB will help you to participate in the **French robotics cup**.

Hugo

Brandily,

President

of the BDE

The Gala and the graduation ceremony:

unmissable events where many alumni return, always proud and curious to discover and meet the new generations of engineers. The goal of the Student Office is to make everyone feel at home at the college, especially newcomers.

We want to make these three or five years in the engineering school the best years of these students' lives. Everything is ready to welcome you and help you to integrate in the best possible way!

During the integration week and welcome weekend, you will meet wonderful people and make friends with the other students.

During the year, we are here to help you with your education through weekly tutoring and to organize the different events and parties that form a part of student life at the ENIB.

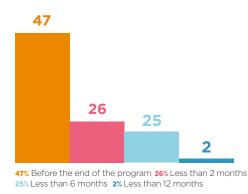
Need help? Have a question?

Don't hesitate to come and see us, we are here for you!

Graduate employment

A large number of career choices are open to ENIB engineers thanks to the college's generalist training.

Duration of search for the 1st job (%)







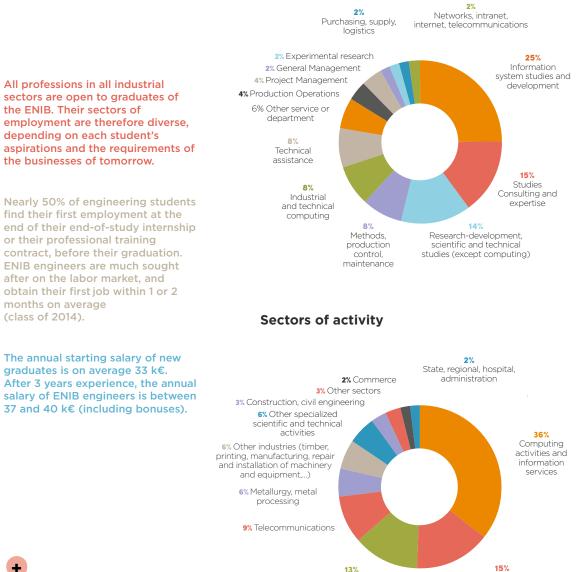
Nearly 50% of engineering students find their first employment at the end of their end-of-study internship or their professional training contract, before their graduation. ENIB engineers are much sought after on the labor market, and obtain their first job within 1 or 2

the ENIB. Their sectors of

months on average (class of 2014).

The annual starting salary of new graduates is on average 33 k€. After 3 years experience, the annual salary of ENIB engineers is between 37 and 40 k€ (including bonuses).

What company positions do **ENIB** graduates hold?

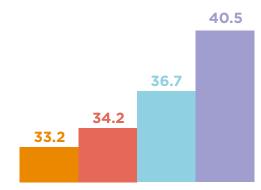


Automotive, aeronautics, naval, rail industry

Consulting firms,

design offices

Annual salary (k€)



33.2K€ 6 months of experience 34.2K€ 8 months of experience 36.7K€ 2 to 3 years of experience 40.5K€ 3 to 4 years of experience

2015 survey data, Association Nationale des Ingénieurs ENIB (ANIENIB) Simon Baudry, class of 2010

ngineer in Mechatronic Design for Aldebaran Robotics.

"In the 4th year, a friend and I were the first to propose a new project, a motorizable panoramic attachment for a camera. Starting with a blank page, we developed a prototype in 6 months. A year later in 2010, during my end-of-study internship at Faurecia, I developed a new motorized car seat reclining system. From reviewing the research already done and doing your own research and development work, a product slowly takes form: that's what I like. In a few weeks I went from Mechatronics Qualification Supervisor to Mechatronic Design Engineer at Aldebaran Robotics. I love what I do and I respect Aldebaran for the progress it has made as a pioneer of French robotics." Louise Piveteau, class of 2011

Project leader in mechanical design for AKKA Technologies.

"What I like most about my job is being able to go out in the field and spend just the necessary time in an office, mainly when I'm meeting a client. Being able to work with several companies at the same time is just as exciting. Leading a project requires a lot of technical knowledge and it takes 5 years to learn it all. Afterwards, you continue to learn throughout your career, what could be more motivating? Currently I am responsible for the development of urban buses for local authorities, for example involving the installation of screens in these vehicles. The local authorities choose their equipment and it is my job to incorporate them into the vehicle. Sometimes I need to consult the workers and technicians involved in the industrialization of a project. You need to be able to react quickly. It is an exciting job that offers many opportunities. And as I say every time someone asks the question, it's not a man's job or a woman's job, it's a job. There is room for everyone."

Chloé Le Bris, class of 2012

•onsulting engineer for the Altran Technologies company. "I chose the general course in mechatronics, which includes mechanics, electronics and industrial computing. I wanted to work in defense. I did my first internship in a laboratory in England, which designed the electronic system for British army vehicles, then I did my second internship at Thales Underwater Systems, specializing in the manufacture of navigational aid equipment. In the 4th year, ENIB presented the concept of co-op courses. Having a professional training contract during my last year allowed me to gain my first professional experience. Thanks to my co-op year, I did not have any trouble finding employment. I work for Altran Technologies company, which specializes in technology consultancy. I act as a consultant engineer and service provider for Thales, as part of a large project on communication and security for international armed forces. The co-op was therefore a great springboard."



Excellence in research

Research projects are largely conducted in the context of partnerships with industry. This dynamic is reflected in publications (journals, books), but also conferences, patents... All of these activities and outputs contribute to building the reputation of our research on an international level.

► **Two research laboratories** at the forefront of innovation guarantee our students a high-quality education and contribute to developing their curiosity.

- → Institut de Recherche Dupuy de Lôme CNRS FRE 3744 (IRDL)
- → Laboratoire des Sciences et Technologies de l'information, de la Communication et de la Connaissance - UMR-CNRS 6285 (Lab-STICC).
- ► Four scientific axes closely linked to the courses taught during the program:
- → Virtual reality for education, leisure and culture
- → Engineering and computing sciences for biology and health
- → Materials and adaptive systems for marine environments
- Photonic, optoelectronic and digital devices for very high-speed communications and for marine applications



> Special relations with industry

→ The research teams at ENIB carry out many projects in collaboration with companies, from small local businesses to large international groups. Many students or recent graduates work on the projects.

Examples of applications:

- ➔ Training in the maintenance of wind turbines by immersion in virtual reality
- Monitoring of marine ecosystems, detection of tsunamis
- ightarrow Control of water turbines and autonomous robots

With more than 40 lecturer-researchers and 40 PhD students and research engineers, ENIB teams are significantly involved in research projects and networks.



Research Training double degree: an excellent opportunity

→ In the 3rd year of the engineering program, students can follow a research program by enrolling in a research Master. This leads to a double degree

COF

- → 4 Research Master degrees joint programs of the ENIB with other partner institutions
- Master in photonics
- Master in signals and circuits
- Master in computer science
- Master in materials and structures

Doctorate

ENIB graduates can continue their studies to PhD level. **Lab-STICC** and the **IRDL** offer many opportunities in collaboration with businesses.

European Center for Virtual Reality

The **CERV** is a **scientific research center** whose goal is to develop concepts, methods and computational tools to simulate realistically the interactions between virtual objects and human operators.

Created by ENIB, it brings together laboratories, businesses and students in a multidisciplinary context where researchers from different backgrounds work together: computer scientists, mathematicians, biologists and psychologists.

Two software engineering and R&D companies, specialized in the fields of virtual reality and simulation techniques: VIRTUALYS and CERVVAL. Approximately thirty engineers and doctors in computer science from the CERV work there.

+ The **CERV** collaborates with theatre companies such as **Dérézo**, the contemporary fairground theatre company, created through theatrical experiments based on **CERV** technologies. In 2011, the popularization of science through art continued with the creation of a new theatrical production: the Scientrifugeuse in collaboration with Impro Infini. Five Scientrifugeuses have been presented to the public since November 2011.









State engineering school and research center of the Ministry for National Education and for **Higher Education and Research**

ENIB provides a five-year course in engineering after the baccalaureate for professional vocations in the fields of electronics, computing and mechatronics

High level education that responds to the needs of the businesses of tomorrow

Accredited by the **Commission des titres d'ingénieur** since 1961

College associated with Institut Mines-Télécom since 2014

ÉCOLE NATIONALE D'INGÉNIEURS DE BREST

Technopôle Brest-Iroise CS 73862 29238 Brest Cedex 3 - France

Tél. : 02 98 05 66 13

¥ f ◎ ⊡ in







