

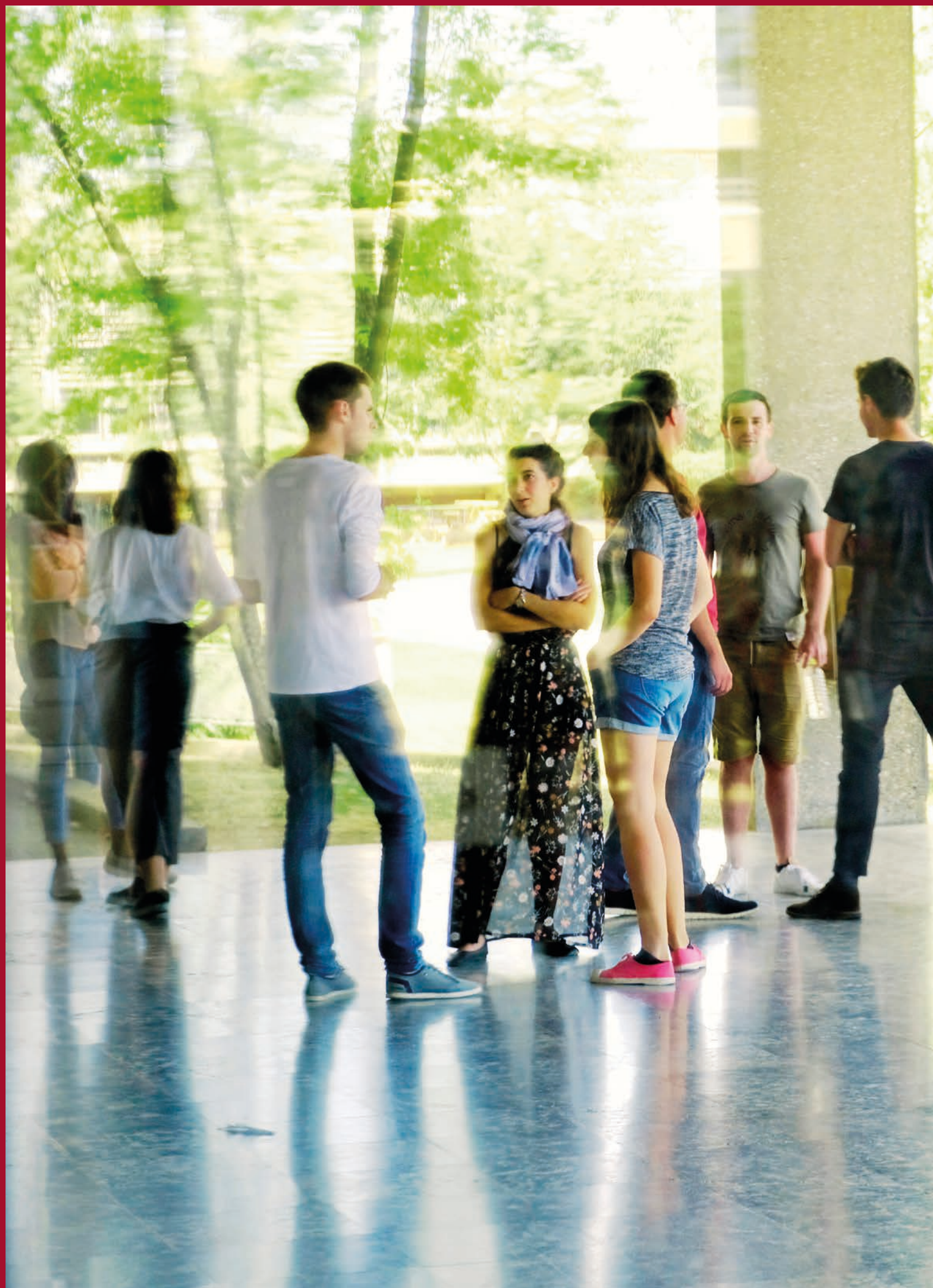


# ÉCOLE CENTRALE DE LYON

ENGINEERING SCHOOL  
BETWEEN HUMANITIES  
AND INNOVATION











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# AN AMBITIOUS SCHOOL THAT IS RENEWING ITSELF

A SCHOOL  
AT THE TOP OF  
FRENCH AND  
INTERNATIONAL  
RANKINGS

## ADAPTATION

The École constantly invests to offer training and research tailored to the needs of companies and perpetually evolving society.

## INNOVATION

The École innovates continuously to stay competitive on the international scene in sciences, innovation and entrepreneurship.

Expertise and resources dedicated to education and research, helping companies recruit and work with the best!







## EDITORIAL

Centrale Lyon is one of the best scientific engineering school in France. Spurred on by its long history, the École is renewing itself while conserving the assets that make up its strength, renown and appeal.

Our Mission: "Training non-specialist engineers equipped with solid scientific and technical knowledge but also open to the world and capable of adapting to changing and cosmopolitan environments". Our students will excel in scientific disciplines. They will know how to put them into practice thanks to open-ended educational methods (tutorials in laboratories, practical exercises, consultancy projects, work experience) and instruction in social sciences, essential to personal development and life in the company.

The energy to be enterprising and daring, the courage and desire to go even further empower our students towards the model of an engineer with an inquiring mind, trained in other disciplines and the prime mover of his or her career.

This is made possible thanks to the numerous partnerships we form with schools and universities in France and abroad. ENISE, a school associated with the École Centrale de Lyon, which should become the first internal school of our institution, also plays an active part in this outward-looking process.

Every year, new opportunities present themselves: from architecture to management, from cooking to arts and crafts, from pure research to healthcare, there are multiple areas for extending one's skills.

Behind each student the research teachers and staff help transform the École and bring students' projects to fruition. This collective process motivates us to reconfigure the institution and offer our students an environment conducive to these projects that meets the best international standards.

New spaces for coursework, meetings and research, pride of place for intercultural exchanges, easy access to new technologies and the preservation of our exceptional living environment are the challenges we are taking up.

**Frank Debouck**  
***The Director, École Centrale de Lyon***



# OUR COURSES

## CHOOSE A CUSTOM COURSE

### > 1 GENERAL ENGINEERING COURSE

To become a professional hired by small and large companies

>>> Page 8

### > 1 ENGINEERING COURSE ON AN APPRENTICESHIP PROGRAMME

To become a specialist in energies and facilities design

>>> Page 11

### > 17 TITLES OF MASTER'S DEGREE

To complete one's basic education with a specialization

>>> Page 12

### > 3 INTERNATIONAL MASTER'S DEGREES

To comprehend the Ecole's fields of excellence in English

>>> Pages 12 and 19

### > DOUBLE DEGREES IN FRANCE

To acquire dual competence

>>> Page 10

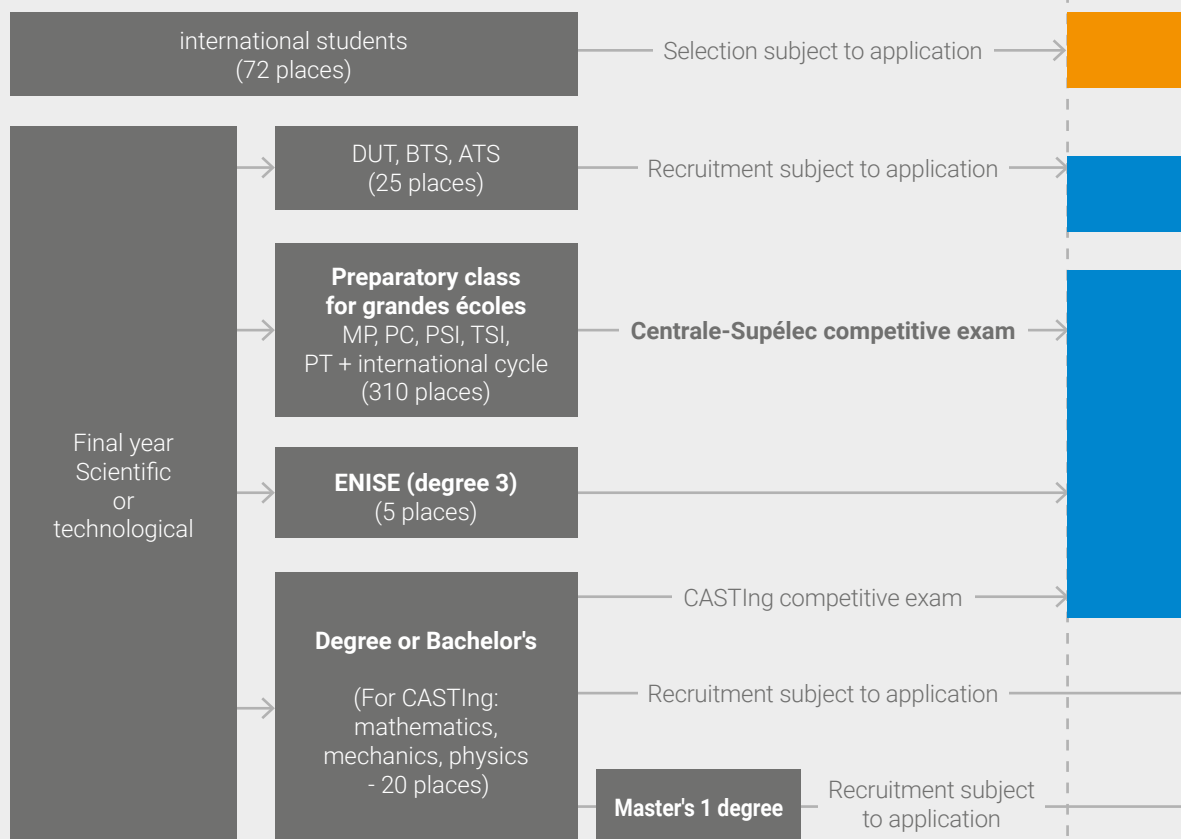
### > 80 DOUBLE DEGREES ABROAD

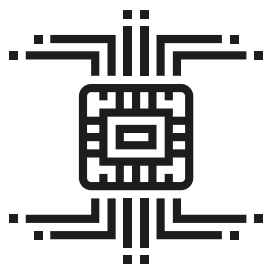
To discover other cultures, other languages

>>> Page 19

JOIN US

HOW TO ENTER CENTRALE LYON





## > SEVERAL SPECIAL STUDY PATHS

To enrich one's education and open up to other disciplines

>>> Pages 10 & 22

## > PHD

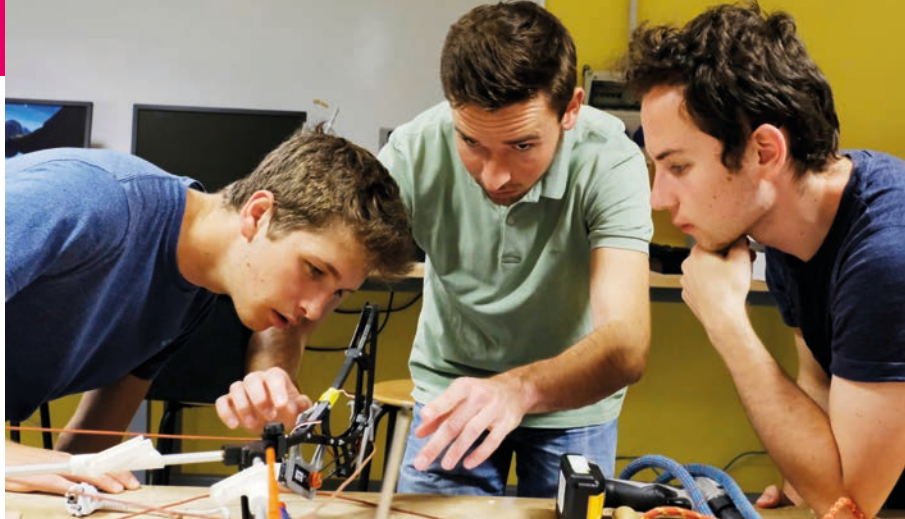
To continue to a doctoral thesis

>>> Page 16

## > LIFELONG LEARNING

To continue educating oneself

>>> Page 13



### 1ST YEAR

### 2ND YEAR

### 3RD YEAR

Exchanges with international partner institutions over six months, one year or double degree

Energy engineer (apprenticeship programme)

## GENERALIST ENGINEER

60 study paths to get the diploma:

double degree or international degree course, double degree or 3rd year in France (ENSAL, emlyon, ENS Lyon, other Écoles Centrale, ENTPE, ENISE, etc.), internal study path (Master's degree, Pro contract, entrepreneurship and intrapreneurship, etc.).

PhD

Master's 1 international degree

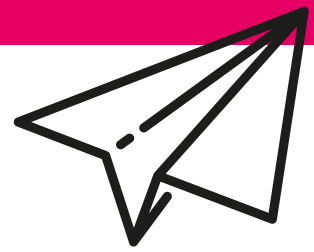
Master's 2 international degree

Master's 2 degree





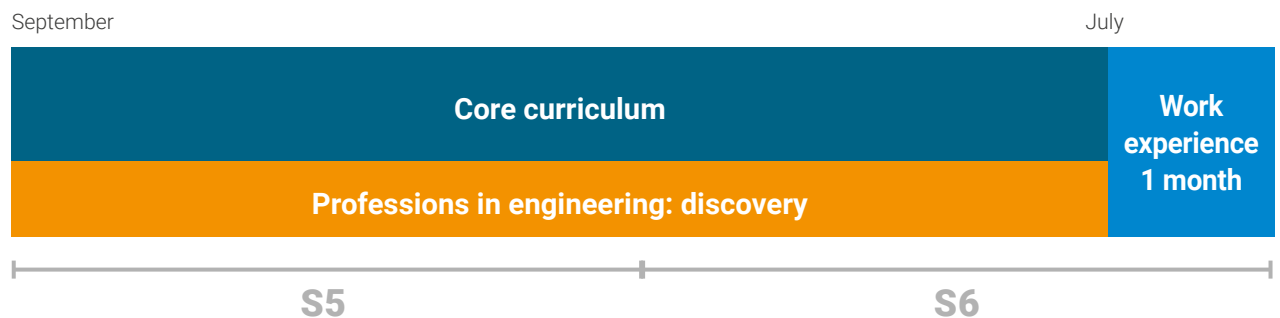
# ENGINEER CENTRALE LYON



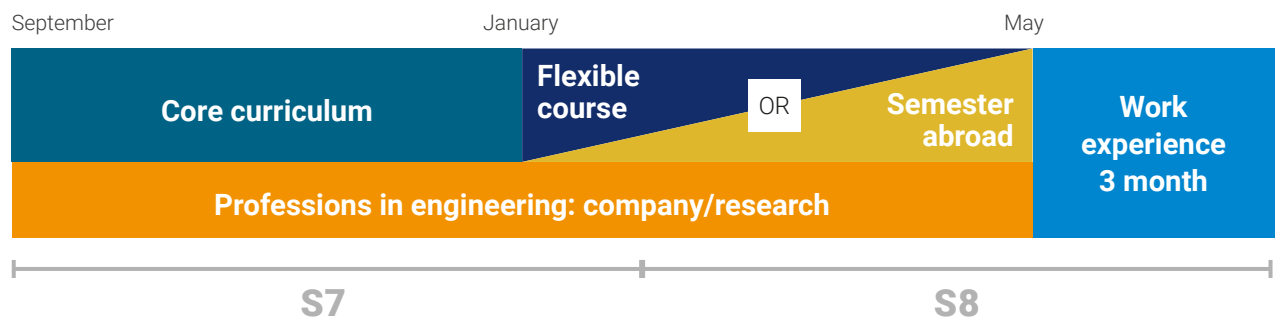
CONSTRUCTING ONE'S CUSTOM STUDY PATH

More info: [www.ec-lyon.fr/Formation](http://www.ec-lyon.fr/Formation)

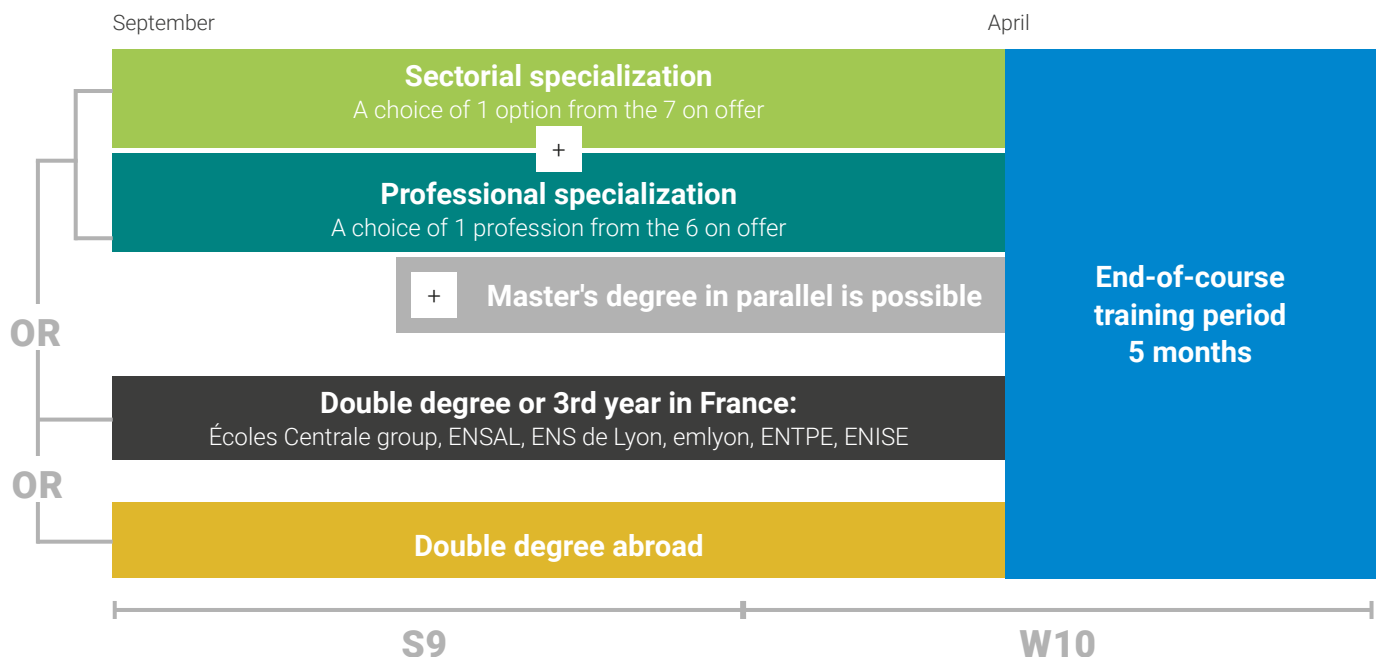
## YEAR 1



## YEAR 2



## YEAR 3





SPORT, AN  
INTEGRAL PART  
OF THE COURSE,  
WITH  
A CHOICE OF 28  
DISCIPLINES.



“What kind of engineer  
do you want to be?  
Exploration, reflection,  
experimentation and  
learning are the tools  
that will enable you to  
build your own course  
at the École brick by  
brick”.

**Marie-Annick Galland,**  
Studies Director

## CORE CURRICULUM 14 TEACHING UNITS (UE IN FRENCH)

### 12 SCIENTIFIC UE

Mathematics | Computing | Fluids and energy | Solid mechanics and structures | Mechanical engineering | Information sciences and technologies | Electrical energy and systems control | Materials engineering | Physics-chemistry of matter  
Humanities and social sciences | Economic and management sciences.  
Further studies: A choice of 2 modules.

### 1 LANGUAGES AND CULTURE UE

10 languages taught: German, English, Arabic, Chinese, Spanish, French as a foreign language, Italian, Japanese, Portuguese, Russian.  
Two mandatory modern languages.

### 1 PROFESSIONAL TEACHING UE

Discover the engineering profession and construct your career plan.  
Work experience | Conferences | Industrial visits | Individual tutoring | Sport | Project.

## PROJECT-ORIENTED LEARNING

**Study project:** a project-oriented course (year 1).

**Application project,** either: a project commissioned by a company or a research project in a laboratory of the École (year 2).  
or a specific project in the 3rd year within the professions and options.

## WORK EXPERIENCE

A minimum of **9 months** in a company, for periods of 4 weeks to 6 months.

## FLEXIBLE COURSE

A path that facilitates opening up and academic exchanges:  
**5 optional 32-hour modules** (to choose from 60) with the option of following a course at the Collège des Hautes Études Lyon Science[s] (see page 10).

## EXPERIENCE ABROAD

One semester, one year or a double degree in a partner university, a work experience or a sabbatical.

## SECTORIAL SPECIALIZATION

A choice of a specialization from among **7 options:**

- > Aeronautics.
- > Bioengineering and nanotechnologies.
- > Energy.
- > Civil engineering and environment.
- > Computing and communication.
- > Mathematics and decision-making.
- > Transport and traffic.

## PROFESSIONAL SPECIALIZATION

Choose a vocational orientation from among **6 professions:**

- > Start-up engineer and business developer.
- > Consulting engineer.
- > Ecodesign and innovation engineer.
- > Organizational excellence engineer.
- > Research, innovation and development engineer.
- > Industrial and environmental risks management engineer.

# AN “AUGMENTED” study path

OPENING UP AND ENRICHING ONE'S COURSE OF STUDY



The mission of the École Centrale de Lyon is to train non-specialist engineers equipped with solid scientific and technical knowledge but also open to the world and capable of adapting to changing and cosmopolitan environments.

## ENRICHING ONE'S COURSE OF STUDY

Being a student engineer at the École Centrale de Lyon is belonging to strong networks in France and abroad, open to mobility, like the Groupe des Écoles Centrale, the University of Lyon or the *Top Industrial Managers for Europe* network (see page 19).

## OPENING UP TO OTHER DISCIPLINES

The École has forged numerous institutional partnerships to offer its students a wide choice of complementary courses enabling them to broaden their field of knowledge. These include the Collège des Hautes Études Lyon Science[s], the “talents croisés” programme with the Paul Bocuse Institute or even the “Artisan-Engineer” agreement with the Rhône's Chamber of Trades (CMA).

## DOING A DOUBLE DEGREE COURSE

In parallel to the engineering degree, the École offers a Master's degree course or even a double degree: architect, manager, researcher, international diploma and soon doctor or economist.

## GIVING NEW PERSPECTIVES TO ONE'S CAREER PLAN

An entrepreneurship project? A desire to work in the field of research? A need to open up to the digital world? Students can embark on the research path to prepare a PhD, or follow the engineering degree course (see page 22), take a technical certificate (CNAM) or train themselves by assisting companies in their digital transformation in the “Centrale Digital Lab”.

THE CHEL[s]

**CHEL[s]**  
Collège des Hautes Études  
Lyon Science[s]

The Collège des Hautes Études Lyon Sciences[s] is a network of six publicly-owned higher education institutions: École Centrale de Lyon, ENS Lyon, Sciences Po Lyon, VetAgro Sup, CNSMD and Les Mines of Saint-Etienne. The CHEL[s] offers students new perspectives, starting with a broad and diversified training offer: shared modules, common courses, MOOC, student events...  
More Information: [www.chels.fr](http://www.chels.fr)





# ENGINEER ON AN APPRENTICESHIP PROGRAMME

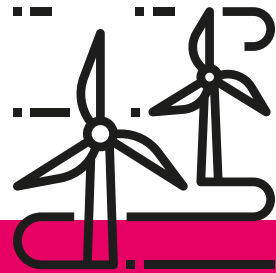
More information: [www.ec-lyon.fr/Formation](http://www.ec-lyon.fr/Formation)



## BECOME A SPECIALIST IN ENERGY, FACILITIES DESIGN

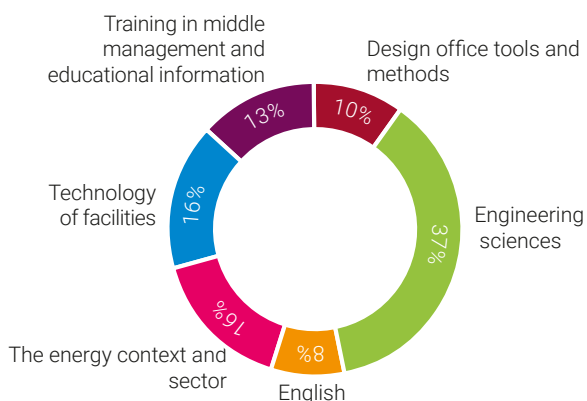
This programme prepares students for their future responsibilities as engineers in the field of energy generation: students must have a **Technical certificate, a two-year technical university diploma**, have completed an **ATS preparatory course** or **be employees** with at least 3 years' experience.

The course focuses on the **design of energy facilities** in the broadest sense: fossil-fuelled power plants, hydroelectric power dams or small renewable energy facilities (geothermal, wind power, biomass, solar or photovoltaic energy).



## SCIENTIFIC AND PRACTICAL SKILLS

A trained engineer has scientific skills primarily in the fields of civil and **electrical engineering, mechanics and thermodynamics**. He masters the methods and tools used in design and engineering, management, maintenance and quality departments. The course includes training in a **foreign language** and a **foreign assignment** of at least two months.



In partnership with the ITII of Lyo



## BETWEEN COMPANY AND SCHOOL, 3 YEARS TO BECOME AN ENGINEER

This is a 3-year course, initially with **three weeks in the École** and **three weeks in the company**. Students engineer must also complete **three industrial projects** in the company to apply their acquired knowledge and practise the profession of engineer.

### EXAMPLES OF PROJECTS

- Monitoring the construction of a wind farm.
- Validating a digital thermal study model (dynamic thermal simulation) for an air treatment facility.
- Studying the energy consumption of an Olympic centre.
- Devising procedures for dismantling a nuclear power plant.

### EXAMPLES OF PROFESSIONS

Main fields: energy (60%) and building and public works (40%).

- R&D engineer.
- Design engineer.
- Applications engineer.
- Project engineer.

### THE PLUS FOR OUR STUDENTS

- An initial successful work experience.
- An engineering qualification recognized by the CTI and access to the network of graduates from the École Centrale de Lyon and the ITILs.
- A specialization in a field with a high rate of recruitment.

# MASTER'S DEGREE



## GET A FIRST-RATE MASTER'S DEGREE

The École offers Master's 2 degree courses (4th year of higher education) open to student engineers in parallel to their third year and to students from other institutions. Three international Master's degrees taught in English are also available after the Master's 1 degree course (3 years' higher education).

## THE ÉCOLE IS ACCREDITED TO AWARD:

### 16 Masters in science, technology and health

- > Acoustics (taught in English)
- > Aeronautics and space (taught in English)
- > Chemistry and Materials Sciences
- > Econometrics, Statistics
- > Electrical, Electronics, Automation, Processes (EEEA)
- > Civil Engineering (GC in French)
- > Industrial Engineering (GI in French)
- > Computer science
- > Health Engineering
- > Applied Mathematics, Statistics
- > Mechanics
- > Nanosciences and Nanotechnologies (taught in English)
- > Optics, Imaging, Vision and Multimedia
- > Risks and the Environment (in law, economics and management)
- > Public Health
- > Ocean, Atmosphere and Climate Sciences (SOAC)

### 1 Master's degree in Humanities and Social Sciences

- > Social, Work and Organization Psychology

These masters' degrees are awarded with our partners, according to the title: the universities of Lyon 1, Lyon 2 and Lyon 3, the INSA of Lyon, the ENTPE, the UJM, the ENISE, the École Nationale Supérieure des Mines of Saint-Étienne, the ENS of Lyon or even the Institut d'Optique Graduate School of Rhône-Alpes.

More information: [www.ec-lyon.fr/Formation](http://www.ec-lyon.fr/Formation)



### Ahmed Gamal, 2018

Student in the 2nd year of the International "Aeronautics and Space" Master's degree "Aeronautics and Space Propulsion" course

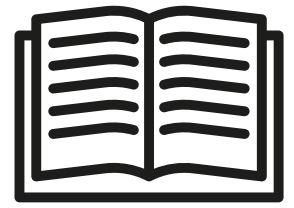


Passionate about aeronautics, I worked for three years in this sector in Egypt, my country of origin. As France has cutting-edge industries in this field, I constructed my project to come and study here. I applied and was accepted on the Aeronautics and Space Master's degree course at the École Centrale de Lyon. I discovered first-rate instruction, teachers who listen and a vibrant social life. I felt welcome and supported both in my schooling and in my everyday life. It was important for me, coming from another country! The "Centrale Lyon" name helped me get a five-month work placement at *Safran Aircraft Engines*, which was very rewarding. I am now in my 2nd year and I intend to spend my whole career in the aeronautics sector in France...





# LIFELONG LEARNING



## DEVELOPING SKILLS WITH THE EXPERTISE OF AN ENGINEERING SCHOOL

ECL Pro is the lifelong learning and work-study department of the École Centrale de Lyon. It empowers trainees in the development of their professional skills thanks to the expertise and know-how of an Engineering School.

More information: [www.ec-lyon.fr/Formation](http://www.ec-lyon.fr/Formation)



## COURSES LEADING TO QUALIFICATIONS

### Executive certificates

An executive certificate is an institution-specific qualification. This training offer is intended for managerial staff, entrepreneurs and corporate officers wishing to develop their operational and managerial skills throughout their career.

**Some examples of programmes qualifying for CPF (personal training account) funding:**

- > Inspiring leadership.
- > Organizational excellence.
- > Supply chain: blue belt and black belt.

### Apprenticeship programme

Non-specialist engineer on professional training contract.  
Energy engineer on apprenticeship programme.

### RNCP certificate\*

Manager, director of medico-social structures (MDSMS).

*\* Répertoire national des certifications professionnelles (national directory of professional certifications)*

## SHORT PROGRAMMES AND CUSTOM COURSES

The short programmes are divided into 5 areas of expertise:

- Science and technology
- Supply chain and management of operations
- Digital transformation
- Innovation and entrepreneurship
- Management, leadership and personal development

These programmes are adaptable individually in in-house or in-company courses. All the themes dealt with in these short programmes can be adapted to the company's specifics and needs with custom courses.



# RESEARCH FOR EXCELLENCE

## ADDRESSING INDUSTRIAL AND SOCIETAL ISSUES

More Information: [www.ec-lyon.fr/Recherche](http://www.ec-lyon.fr/Recherche)



### OUR RESEARCH LABORATORIES

- The **Tribology and Systems Dynamics laboratory** (LTDS).
- The **Fluid Mechanics and Acoustics laboratory** (LMFA).
- The **Ampère Laboratory**.
- **Lyon nanotechnology institute** (INL).
- **Camille Jordan Institute** (ICJ).
- The **Computer Science Laboratory for Image Processing and Information Systems** (LIRIS).



Jean-Pierre Bertoglio,  
Director of Research

“Research at the École is characterized by a remarkable balance between academic research and research with partners, guaranteeing a positioning at the highest scientific level while maintaining firm roots in the real world of companies.”

### FACILITIES DESIGNED TO ENHANCE INTERACTION BETWEEN EDUCATION AND RESEARCH

The new Tribology and Materials Mechanics (TMM) building, inaugurated in October 2017 on the day of the campus's 50th anniversary, enables research teachers, students and PhD students to be together more easily in a unique skills centre with tutorial rooms in the heart of the laboratories.

The École is preparing its next construction projects to continue developing interdisciplinarity and exchanges, and to strengthen cohesion between research and teaching







## RESEARCH AT THE HEART OF KEY SOCIETAL ISSUES

### Some examples:

- > Create a **robot that can see**, ideally suited for assembly lines.
- > Invent programmes to help **autistic children** express their emotions as best they can.
- > Develop new **cancer** treatments that better target the person's profile.
- > Research new **antibiotics** found naturally in the environment by studying the earth, which contains billions of bacteria.
- > Reduce **the noise disturbance** of aircraft in line with environmental standards and improve their technical performance.
- > Make **tunnels** safe by developing super-efficient fans that can disperse fire smoke at high speed.
- > Study the run-off of water in town in the event of **flooding**, in particular at points where several roads intersect, to forestall the most frequent and sudden flash floods.
- > Work on the **elasticity** and ageing of skin to develop cosmetics applications and support archaeology in its research into tissue wear.



More than 300  
publications of the École  
in scientific journals



6 UMR CNRS  
research laboratories



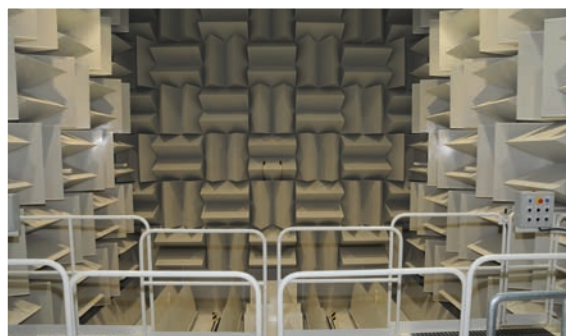
19,361 m<sup>2</sup>  
dedicated to research

## FACILITIES THAT ARE UNIQUE IN EUROPE, SUCH AS:

**IVTV:** Engineering and Ageing of Living Tissues



**PHARE:** Rotating machines platform for environmental risk control



**NANOLYON:** Micro and nano-manufacturing platform



# RESEARCH WITHOUT BOUNDARIES

## PUTTING A LOT INTO INTERNATIONAL PROJECTS

More Information: [www.ec-lyon.fr/Recherche](http://www.ec-lyon.fr/Recherche)



### DEVELOPMENT

The École has two research development structures, the research and development partnership service and Centrale Innovation.

Their missions include:

- > Engineering collaborative research projects.
- > Support for benchmarking and setting up research projects and their legal, administrative and financial follow-up.
- > Support for transfers of innovative technologies and for creating start-ups.
- > Management of a portfolio patents.

### PRIDE OF PLACE FOR PhDs

A PhD course takes three years and can complete an engineering course.

In preparation for a career in research and development, students having completed 5 years' higher education conduct research in the School, possibly in connection with a company.

#### DID YOU KNOW?

Thibaut Souillart, a young PhD student from the École, was awarded the jury's 1st prize and the public prize for the "My thesis in 180 seconds" competition organized by the university of Lyon by presenting "Wear on steam generator tubes generated by repeated impacts against supports with gaps".



280  
PhD students



More than 130  
patents in the portfolio



8 international  
research sites

# AN INTERNATIONAL RESEARCH POLICY WITH PRESTIGIOUS UNIVERSITIES



## Associate international laboratories (LIA):

- ELYT LAB: materials.
- 2MCIS: solid and fluid mechanics, acoustics.
- MAXWELL: electromagnetism.
- WIDE-LAB: design and manufacture of advanced components.
- CPN: photonics, photovoltaic solar energy, quantum computing.
- ALPhFA: plasmonics, optical antennas, meta-materials, middle infrareds.

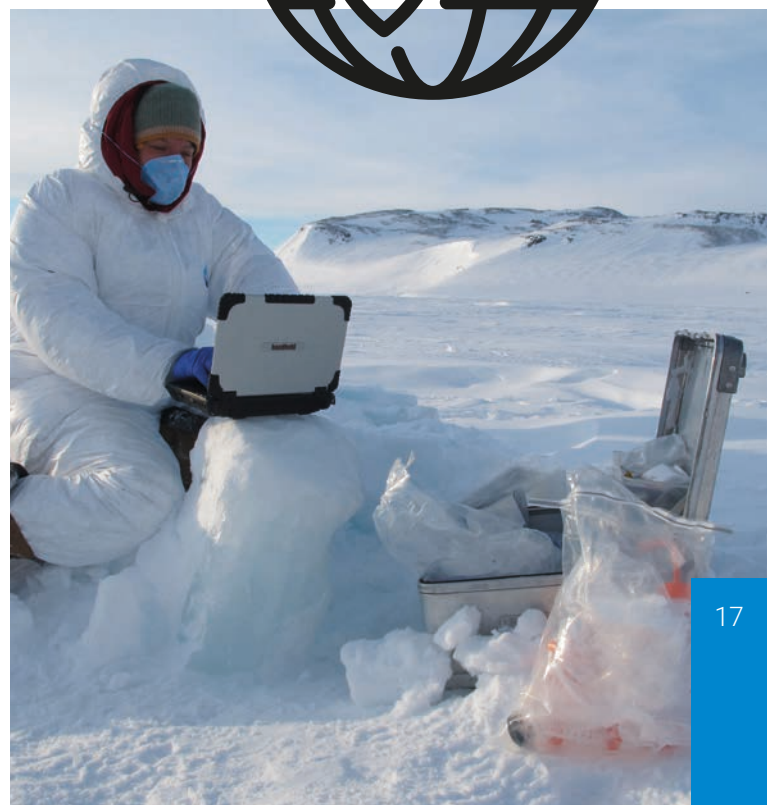
## Combined international units (UMI):

- LN2: nanotechnologies and nanosystems.
- ELYTMAX: behaviour or materials and extreme conditions.



## A MICROBIOLOGIST SETTING OUT TO CONQUER THE ARCTIC

Catherine Larose, researcher at the CNRS attached to the École's Ampère Laboratory, has gone on missions in the Arctic nearly every year since 2007. She takes ice core and snow samples to study the behaviour of tiny unicellular microorganisms. *"These living beings have a single cell and survive in extreme conditions. They wage war on one another constantly to protect their territory. We track their interactions by examining their DNA"*, she explains. This gives researchers invaluable indications as to how certain living beings are adapting to global warming.



///ZOOM



# INTERNATIONAL RELATIONS

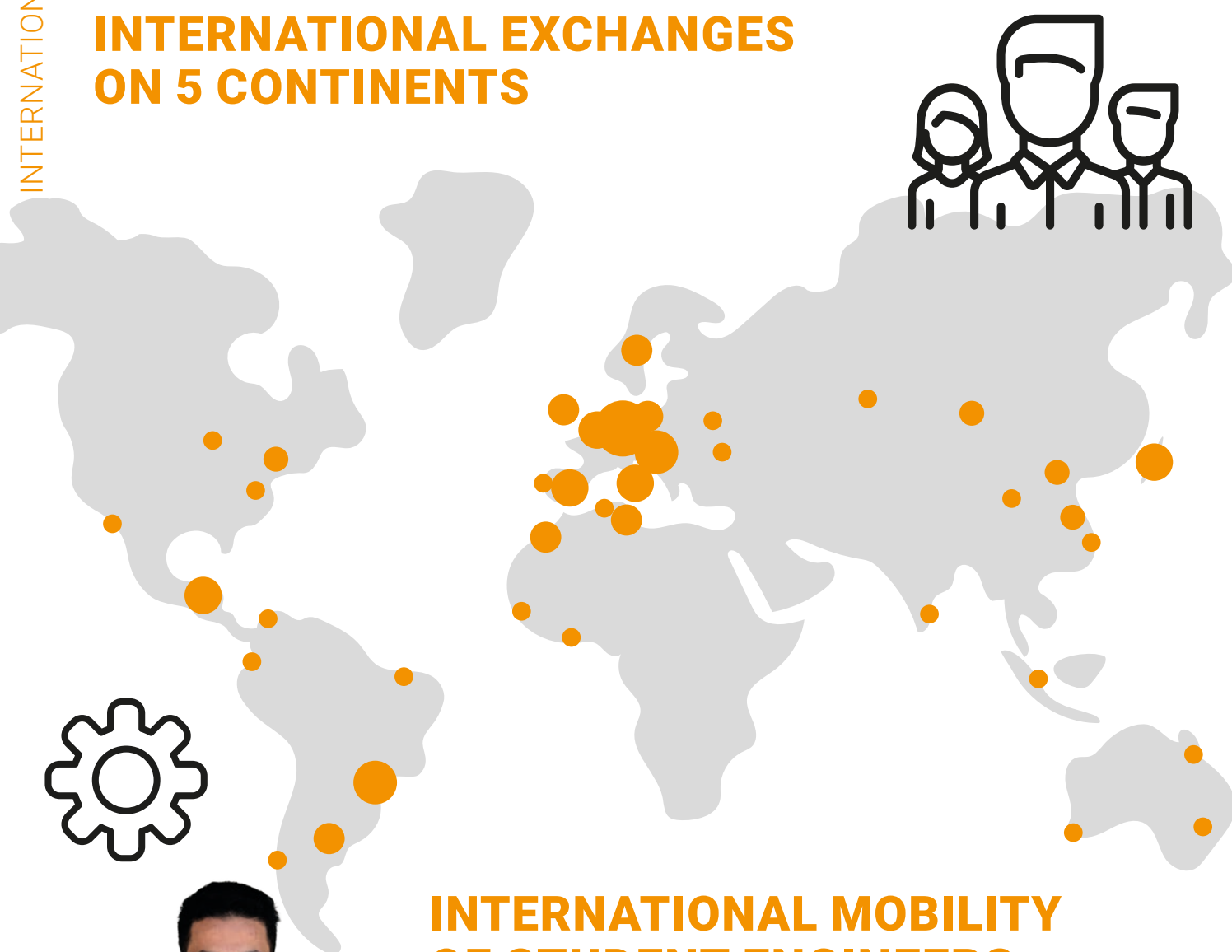
OPENING UP TO THE WORLD

More information: [www.ec-lyon.fr/International](http://www.ec-lyon.fr/International)



## INTERNATIONAL EXCHANGES ON 5 CONTINENTS

INTERNATIONAL



## INTERNATIONAL MOBILITY OF STUDENT ENGINEERS

A foreign assignment of at least one semester is mandatory to get the École Centrale de Lyon's engineering diploma. This can be done in a number of ways:

- A six-month **work experience** in a company or laboratory in the second or third year.
- A six-month **academic exchange** or research project in a partner university in the second year of the school's course.
- At least **one semester abroad** during a sabbatical year, after the second year.
- A **year's exchange** during the third Centrale Lyon year.
- Preparation of a **double degree** in a partner university.
- Preparation of a **Master's degree** excluding an agreement in a non-partner university.



# INTEGRATION OF FOREIGN STUDENTS

Every year the École Centrale de Lyon takes in more than 450 foreign students from all over the world, for engineering degree, Master's degree or PhD courses.

Students can attend an international Master's degree course taught in English for two years in the following subjects:

- **Nanosciences and Nanotechnologies.**
- **Aeronautics and space.**
- **Acoustics.**

The school has drawn up an integration charter for foreign students.

## PANORAMA

The École has pursued an ambitious international policy for over 50 years, structured mainly around three actions: encouraging its students to **work abroad**, the **intake** of many international students on its campus, and the development of international **research programmes**.

Partnerships with more than **100** universities all over the world.

More than **180** partnership agreements with universities worldwide.

Nearly **80** of these agreements are double degree agreements.



## ERASMUS+

The École participates in the Erasmus+ programme, which aims to support initiatives in the fields of education, training, youth and sport. It has signed the European Commission's Erasmus charter for Higher Education.

## NETWORKS

A pioneer in international openness, the school has established close ties with renowned foreign universities and has developed partnerships within European, Mediterranean and global networks.

The École is a member of the **T.I.M.E. network (Top Industrial Managers for Europe)**, alongside more than 50 world-class universities. This initially European network is now opening up to the whole world: Australia, Brazil, China, Japan and Russia.

It is also a member of the **UFA (Université Franco-Allemande)**, alongside 194 institutions, to improve Franco-German cooperation in higher education and research.

With the other schools of the Groupe des Écoles Centrale, the École has set up strong international networks:

- > **In Brazil:** a "5+6" Agreement, for structured academic exchanges within a veritable Franco-Brazilian network.
- > **In China:** a "5+6" Agreement, for developing double degrees and the mutual interests of French and Chinese students for the partner country.
- > **In the Mediterranean:** the RMEI (Mediterranean network of engineering schools), in which the school takes an active part and which brings together 73 technical universities and engineering schools in 16 Mediterranean countries.
- > **In Australia:** GEMA, the group of engineering schools for the Australian navy, alongside Polytechnique, ENSTA ParisTech, CentraleSupélec and Centrale Nantes.



## DID YOU KNOW ?



**The Groupe des Écoles Centrale** has bases on 4 international campuses:

- > Centrale Beijing (China).
- > Centrale Casablanca (Morocco).
- > Mauritius Campus (Southern Africa).
- > The Mahindra École Centrale (India).

# CLOSE COOPERATION WITH COMPANIES

OPEN INNOVATION AT THE HEART OF OUR PARTNERSHIPS

More information: [www.ec-lyon.fr/Entreprises](http://www.ec-lyon.fr/Entreprises)



## RESEARCH AND INNOVATION

### CHALLENGES

The École opens the doors of the 6 laboratories on its site to its research teachers in order to facilitate innovation.

### SERVICES AND RESOURCES

Technology watch, collaborative projects, state-of-the-art research platforms and equipment, technical appraisal services.



## COURSES

### CHALLENGES

The École invites companies to contribute to the training of tomorrow's engineers. It also trains employees to develop their expertise.

### SERVICES AND RESOURCES

Students' projects, conferences, company visits, apprenticeship courses, professional contracts, Executive Certificates, custom courses.



Centrale Lyon constructs a **custom partnership** with each company matching its specific objectives and challenges: exposure or recruitment actions (work placement offers, forums, conferences, workshops, etc.), participation in academic and educational projects and sourcing the École's students and experts to accompany projects.

Centrale Lyon also offers chairs, LabComs and OpenLabs for companies wishing to perpetuate their commitment to the school over the long term.

The École **deploys 5 key areas of collaboration** for **5 specific issues**. It offers a range of multiple **services and resources** closely linked to the objectives of companies.

## EMPLOYER BRAND



### CHALLENGES

The École facilitates the recruitment of the best and participates in the development of the company's activities.

### SERVICES AND RESOURCES

Work experience, sabbaticals, meetings with students, forums, conferences, events.

## INFRASTRUCTURE



### CHALLENGES

The École rents out its facilities in a green and pleasant campus at the gates of Lyon.

### SERVICES AND RESOURCES

Amphitheatres, classrooms, sports facilities, LearningLab, FabLab...

## ///ZOOM



### A model of a fan on a scale of 1 to 3 made with Eiffage for the construction of the future line 16 of the Greater Paris metro.

Following the Mont-Blanc disaster in March 1999, Richard Perkins and Pietro Salizzoni from the LMFA have been working on a research project aimed at characterizing the behaviour of fans in case of peak pressure in a tunnel. The first tests will be run in the LMFA, where a test bench will be built at the request of Eiffage. This project is part of the construction of the first section of the future line 16 of the Greater Paris metro in preparation for the 2024 Olympic Games.

Two other laboratories of the École are associated with this major project: the LTDS, under the direction of Laurent Blanc for the mechanical engineering part, and the Ampère laboratory, under the direction of Christian Vollaie for the fan's electrical behaviour study.

*"This test bench with Eiffage is an interesting prospect because the study of the resistance of fans in off-specification conditions does not just concern Greater Paris", explains Richard Perkins, an expert in fume control.*

## DID YOU KNOW ?

The École offers custom partnership agreements for 1, 3 or 5 years, incorporating one or more dimensions of the 5 aforementioned key areas.

## SPONSORSHIP



### CHALLENGES

The École invites active participation in deploying its major projects by supporting social and environmental initiatives on its renewed campus.

### SERVICES AND RESOURCES

Prizes, scholarships, backing for CSR projects, naming spaces.

# INNOVATION AND ENTREPRENEURSHIP

**TAKING RISKS AND STIMULATING THE DESIRE TO CREATE AND INNOVATE**

More Information: [www.ec-lyon.fr/Formation](http://www.ec-lyon.fr/Formation)



## ENCOURAGING THE ENTREPRENEURIAL SPIRIT

The École Centrale de Lyon offers two courses designed to empower:

Students for the creation of innovative and sustainable start-ups  
**>> ENGINEERING DEGREE**

Companies for creating innovative and creative activities  
**>>> INTRAPRENEUR STUDY PATH**

These study paths offer an intensive "Start-up & Business Development" course, aid in transforming ideas and realizing the project, and a period of incubation in France or abroad.

Spread over one year, these courses make the most of the École's resources, like the LearningLab or the FabLab, and draw on a network of specialists in technology, entrepreneurs and alumnae worldwide.

## CENTRALE DIGITAL LAB

**Supporting the digital transformation of companies.**

Centrale's Digital Lab certificate is an immersive one-year course intended to train future professionals of the digital transformation of companies to become CDOs (Chief Digital Officers). This is an initiative of the Groupe des Écoles Centrale.

### TARGET AUDIENCE:

- Student engineers on a sabbatical year or after graduating.
- A validated postgraduate degree (or on pending validation).
- Lifelong learning.

///ZOOM 



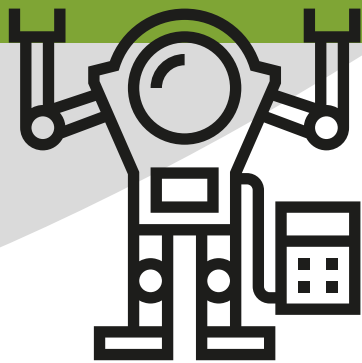
**Ernesti, a start-up partnered by our engineering degree course.**

***How has the Engineering degree course helped you in fulfilling your project?***

The Engineering degree course has enabled me to learn the basics of entrepreneurship: refocusing my idea on its true value, not on its form, confronting experts, developing a robust business, pitching my project to financiers, etc.

In addition to the classes and lectures, the advantage of this degree course is its intelligent flexibility. When you embark on an entrepreneurship project, you never really know where you are going, you feel your way forward, sometimes you come up against a wall, or find back doors, sometimes you continue, but often it's better to stop. It's very reassuring that one can resume the "normal" course every three months. Personally I always had a clear run, so naturally I completed the entire degree course. I have now left the school and my project, a platform for networking the elderly with health students, is progressing. What an adventure!

**Quentin Zakoian, graduate of the École Centrale de Lyon, co-founder and chairman of Ernesti**



## LearningLab CENTRALE LYON **LEARNINGLAB**

The Centrale Lyon LearningLab features innovative resources in a single location for:

- EXPERIMENTING
- CONDUCTING RESEARCH
- TRAINING
- ADVISING
- IMPARTING KNOWLEDGE
- CREATING A NETWORK
- GETTING EXPOSURE

Flexible furniture, writing walls, interactive screens, telepresence robots, co-design room, voting boxes and ideation software are at everyone's disposal.

**The LearningLab also supports and advises teachers to help them improve their methods for the benefit of the students.**



## **FABLAB**

### **Technology serving creativity and innovation.**

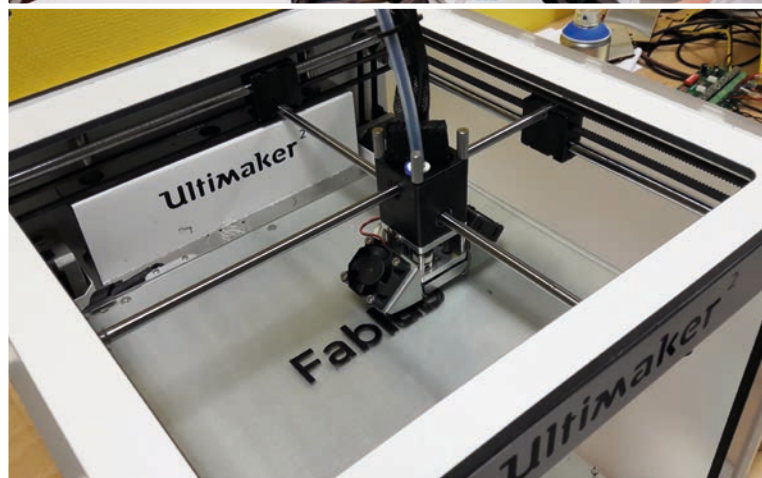
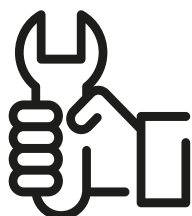
The FabLab is a tool that accelerates innovation, offering rapid prototyping possibilities to validate ideas and uses prior to an industrial launch. It lets you move on from a mental projection to the creation.

Open to everyone in the school, Centrale Lyon's FabLab hosts the fulfilment of professional, educational and personnel projects, whether or not they are accompanied.

Supervised by teachers, the FabLab is run by a students' association.

### **THE FABLAB'S TOOLBOX**

- **Ultimaker 3D printers.**
- **Laser, plasma and water jet cutting machines (for wood, plastic, metal, etc.).**
- **Vinyl cutting machine.**
- **Band saws.**
- **Column drilling machines.**
- **Sewing machines...**



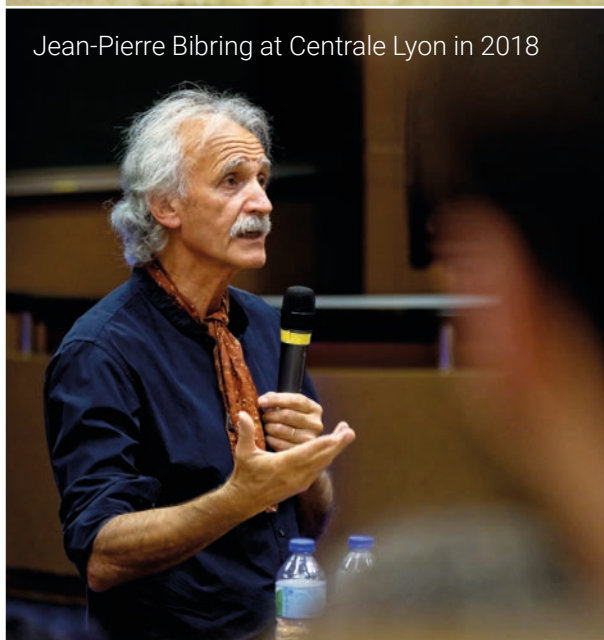


# COMMITMENT AND A WINDOW ON THE WORLD

**BEING AT THE HEART OF DEBATES, DISSEMINATING  
KNOWLEDGE**



Jean-Pierre Bibring at Centrale Lyon in 2018



## **CENTRALE LYON'S DNA: COMMITMENT, DIVERSITY, ENTHUSIASM**

Passionate about the world around them, Centrale Lyon's students construct their personal study path and course around collective activities and community life. Their social, environmental, sporting or cultural engagement is recognized as a factor of self-fulfilment and success.

## **TRANSFERRING KNOWLEDGE: A MULTIFACETED MISSION**

ALONGSIDE the teachers, the École's researchers are very keen to participate in the transfer of knowledge. They offer industrialists their skills and knowledge within the framework of partnerships, where innovation has pride of place.

In parallel to research development activities, motivated teams organize nearly 300 events every year, thereby providing more and more opportunities for encounters:

- > National and international conferences and symposiums focusing on the major topics of the world of engineering.
- > Inaugural conferences presented by men and women whose careers fire the imagination: astronaut, physicist, philosopher, fighter pilot, committed writer, submarine captain...
- > Ethical cafés to debate the burning issues of society.
- > Workshops to promote "science for everyone".
- > Circuits of discovery of the 6 UMR CNRS laboratories on the campus.

# ACTING AS A RESPONSIBLE CITIZEN: A CLEAR RESPONSIBILITY



Through the engagement of its teachers and students, the School develops projects and contributes to programmes promoting social awareness, diversity and sustainable development.

## SOCIAL AWARENESS AND DIVERSITY

By signing a charter in 2013, the École Centrale de Lyon undertakes to comply with the principles of equality, diversity and mixity, and promote and implement these principles in the schools and among students and staff:

**Bring sciences to the schools in disadvantaged neighbourhoods** through recreational experiences like the "Ose les Sciences" programme.

**Being associated with the "Elles Bougent" association** to raise young women's awareness about turning towards scientific careers and investing in sectors lacking female talents: space, aeronautics, transport...

**Act in favour of the democratization of higher education** and against the self-censorship of certain students vis-à-vis scientific studies by inviting them to the campus through "Journeys of discovery".

**Promoting the International Women's Rights Day** by organizing "Centr'L", an original event, with debates, exchanges of views and expression for everyone.

## SUSTAINABLE DEVELOPMENT AND SOCIAL RESPONSIBILITY

The École takes initiatives to protect natural areas and develops tools to improve selective waste sorting on the campus. It engages with its partners and suppliers to promote responsible behaviour. For example:

- Development of a collection area, waste separation for all and recycling requirements and short distribution channels for our procurement contracts.
- Reducing the carbon footprint: purchases, modes of transport...
- Elimination of chemical treatment for sustainable management of green areas.
- Improved energy efficiency of the buildings by carrying out building work.



# THE CAMPUS FROM DAY TO DAY



## ENJOY A PRIVILEGED ENVIRONMENT

More information:  
[www.ec-lyon.fr/Campus](http://www.ec-lyon.fr/Campus)



### ACCOMMODATION

More than 600 equipped rooms and studio flats in two furnished halls of residence, with all the amenities and a friendly atmosphere.

### CATERING

The university restaurant, a meeting place for students from the West Lyon campus, is run by the CROUS. It is open at lunchtime and in the evenings on weekdays and is located in the heart of the school.



17

hectares planted  
with trees

### FACILITIES AND SERVICES

- > **A film theatre:** the film club screens 3 films a week.
- > **A variety of sports facilities:** gym, climbing wall, stadium, tennis courts, a weights room, a boules area... and within easy reach: a lake, a dojo, a swimming pool...
- > **Self-service computer rooms.**
- > **Three pianos** at everyone's disposal.

1756 m<sup>2</sup>  
reserved for  
students

### LIBRARY

- Open to all the École's students, the 500 m<sup>2</sup> Michel Serres library performs several functions:
- > Access to documentation.
  - > A repository and showcase of the work of the École's students and staff.
  - > A range of services and courses.
  - > Regular exhibitions and cultural events.

### STUDENT'S CENTRE

**A students' centre** of 610 m<sup>2</sup> in floor area to unwind, revise, eat and party is at the disposal of the students. The bar, the hub of the hall, is run by an association and offers snacks and drinks.





# LIVING IN LYON

## STUDYING IN AUVERGNE RHÔNE-ALPES

Studying and living in Lyon is about discovering a heritage and a rich and vibrant cultural life, but also about giving oneself the keys to success. Ideally situated between the sea and the mountains, the Métropole de Lyon is in the heart of the 5th largest European region in terms of population and GDP.



## LYON, THE NUMBER 1 CITY FOR STUDENTS IN FRANCE

**Confirmed by the Étudiant magazine's league table, Lyon is ranked the number 1 French city for students.**

The very rich economic fabric partly explains the appeal of Lyon and its suburbs, but it is also the living environment and its environmentally-friendly modes of transport that account for this ranking. So much so that 30,700 additional students have swelled the ranks of the capital of the Gauls in the last 10 years.

### Lyon

Number 2 city of culture in France

More than 144,500 students

2nd largest industrial conurbation in France

The sea and the mountains 2 hours away

### Auvergne Rhône-Alpes

248 tourist attractions

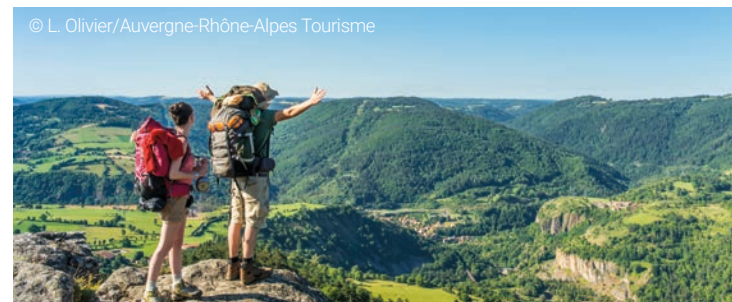
173 ski areas

## LYON'S HIGHLIGHTS

Fête des Lumières /// Nuits de Fourvière ///  
Biennale d'Art Contemporain /// Biennale de la Danse ///  
Festival Lumière /// Nuits sonores



© L. Olivier/Auvergne-Rhône-Alpes Tourisme



# ASSOCIATIONS

## BEING ENRICHED AND ENLIVENING THE SCHOOL

AT Centrale Lyon, community activities punctuate the life of the campus. Cultural, social and sports activities, nearly 1,500 student engineers energize campus life.

The students' associations of the École Centrale de Lyon (AEECL and USEECL) enrich life on the campus and coordinate the organization of activities and events. Visit their site at [www.myecl.fr](http://www.myecl.fr).

More information: [www.ec-lyon.fr/Campus](http://www.ec-lyon.fr/Campus)



## LIFE ON CAMPUS

A newspaper, bar, evening and audiovisual events, not forgetting IT projects, a print house...

## MAJOR EVENTS

- > The Centrale Lyon Challenge - a tournament with 3,000 entrants.
- > The Gala - end-of-year graduation ceremony evening.
- > The WEI - 2 weeks of on-boarding.
- > The RAID - a 100 km trail.
- > Commuz' - a musical with an audience of over 1,000.

## SPORTS

more than 26 sports possible: football, rugby, climbing, skiing, basketball, volleyball, handball, athletics, fencing...







**200**  
active  
members in the  
associations



Nearly  
**60**  
clubs  
and associations

## THE ARTS

Outings, events and a multitude of clubs: singing, orchestra, brass band, dance, cinema, theatre, photo, video, graphics...

## PROFESSIONAL ASPECTS

The Perspectives Forum, a student organization that obtains contract work, innovative associations...

## BEING OPEN TO OTHERS

Inter cultural exchanges, solidarity, social mix and sustainable development.

## LEISURE ACTIVITIES

Board games, gaming, strip cartoons, oenology but also aeronautics, car mechanics, architecture...





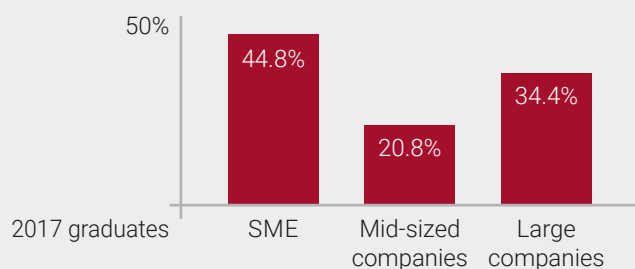
# AFTER CENTRALE?

## BENEFIT FROM A SUBSTANTIAL NETWORK FOR A GREAT CAREER

École Centrale de Lyon graduates start their career in very varied environments. Their sound and diversified training lets them **construct a custom career path**, in fields and environments that match their aspirations. Two out of three Centrale Lyon students **find their first job eve before graduating**... with very fine careers in prospect, as evidenced by the excellent network of Centrale alumnae.

### THE JOB MARKET

Centrale Lyon graduates work in all types of companies



An above-average net employment rate for engineering schools



More than 8 out of 10 graduates on permanent employment contracts (86.1%)



#### Remuneration

> In France, gross annual salary with bonuses and fringe benefits:  
€38,100 to €47,800  
Median salary: €40,700

> Abroad, gross annual salary with bonuses and fringe benefits:  
€44,720 to €61,800  
Median salary: €48,152

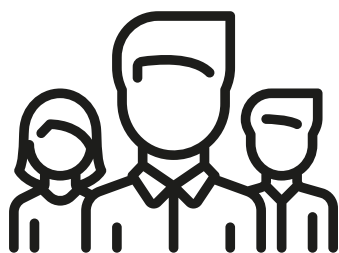
Source: 2018 grandes écoles conference survey

DID  
YOU KNOW?  
ECL  
ALUMNI  
ASSOCIATION

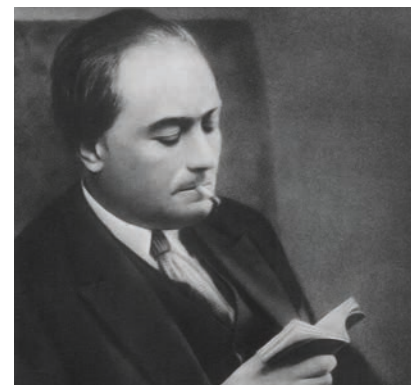


**Arnaud Breuillac** Class of 1981

Exploration-production engineer, he has worked in France and abroad in the Total Group. After a period spent in the Middle East and Central Asia, he became chief operating officer of the exploration-production division then member of the Group's executive committee.



ECL alumni association brings together all the École Centrale de Lyon's students, engineers and PhDs. It aims to establish and maintain close and friendly relations between all its members and to provide support for Centrale graduates in their careers.



**Joseph Béthenod** *Class of 1901*

Inventor with 300 patents and 150 publications, co-creator and Technical Manager of the Société française radio-électrique (SFR), he was elected member of the Academy of Sciences in 1942.



**Paul-Émile Victor** *Class of 1928*

Polar explorer, scientist, ethnologist, writer and US Air Force pilot, he was the founder and head of French polar expeditions for 29 years.



**Nadine Leclair** *Class of 1980*

Design engineer, she joined Renault in 1984. Member of the car manufacturer's management committee, she was successively director of vehicle engineering, director of engineering projects and henceforth in charge of the group's expertise.



**Fabrice Thouverez** *Class of 1988*

Engineer PhD, he completed his post-PhD course at MIT and now runs the Tribology and Systems Dynamics Laboratory (LTDS) at the École Centrale de Lyon. Chair of the Manutech EIG, he is a reviewer for several international scientific journals.



**Christine Besset** *Class of 1999*

Engineer who specialized in finance in her third year, she chose to continue her career in the United States. She became associate director at Standard and Poor's, one of the three main credit rating agencies in the world.



**Clément Thibault** *Class of 2006*

Engineer and entrepreneur, he started out as a consultant then ran the web and mobile business unit at Skyrock. He is the Chief Executive Officer and co-founder of the Le Petit Ballon start-up, which joined the Vente-Privée group in 2017 with sales of wine bottles in excess of a million and a half.



ÉCOLE  
**CENTRALE** LYON

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The École Centrale de Lyon is a school in the Écoles Centrale group.



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