



INNOVATIVE ENGINEERING

**SCHOOL OF ENERGY AND DIGITAL TECHNOLOGY
WHERE SUSTAINABILITY DRIVES INNOVATION**



PARISIAN SCHOOL OF ENGINEERING

Energy Transition <
Transport & Mobility <
Smart cities <
Biotechnology & Health <
Digital Intelligence <
Robotics <
Cybersecurity <





VÉRONIQUE BONNET ESME CHAIR WOMAN

“The ESME campus enjoys an ideal location in the heart of the capital and takes full advantage of the city’s booming economy and culture and its cutting-edge technology. Paris has been ranked among best cities the best student by QS for the fourth year running, attracting more than 50,000 students each year, and is the leading non-English speaking host city in the world.

Since 1905, it is in this dynamic, stimulating environment that ESME has been training engineers capable of innovating to address energy and digital transition issues as well as social and environmental challenges. From the first year on, students will participate in pedagogical activities geared towards raising awareness regarding sustainability and responsible innovation.

These programs simultaneously cater for ESME students who have opted for an international program, as well as for international students from our partner universities. This dynamic will be bolstered as we strengthen our existing partnerships and develop new collaborations. Developing the range of courses and increasing student numbers is now a strategic and priority objective for ESME. Since 2020, international students have the opportunity the entire five year curriculum including the common courses.

Major efforts have been made to improve graduates’

ability to find their place in the multicultural, global professional world, regardless of their sector of activity. The development of modules taught in English enabled the school to open the first English-speaking program in January 2017 in the field of connected objects and smart cities. On the back of this success, an international program in Cybersecurity was launched in September 2018 in partnership with renowned industrial groups. Our newly major Electric vehicles is set to debut in 2022.

The school is devoting significant resources to achieving this, targeting two priorities: the quality of service for international students (sponsorship, practical services, cultural tours, French lessons) and the quality of courses offered, both in terms of content (cutting-edge innovation technologies) and in the calibre of teachers and partnership companies associated with the program. In addition, ESME has chosen to integrate international students from different horizons alongside open-minded French students who are motivated by international work, in order to promote diversity and cross-cultural exchange. In this brochure you will find a presentation of the school, its services and its range of courses for international students.

By choosing ESME you are choosing an unforgettable academic and cultural experience, at the heart of the most beautiful city in the world !”

ESME IN A NUTSHELL

ESME is a private higher education institution. The school grants the French Degree of Engineering, "Diplôme d'ingénieur", equivalent to a Master's degree certified by the "French Commission on Engineering Credentials" (CTI).

The school has over a century of experience in training engineers. ESME is a proud member of the "Grandes écoles", France's prestigious consortium of high-level engineering and business schools, whose students are selected through highly competitive entrance examinations.

The School is a signatory to the Erasmus Charter for Higher Education, 2021 - 2027 allowing the school to promote and provide support for students and staff international mobility.

ESME is ranked among the top Schools of engineering in France and with 96% of graduates who get hired within two months after graduation, the School ranks 2nd in France for Professional insertion*!

KEY FACTS

16 000

Alumni

300

Faculty and Staff members

20

nationalities

28/130

ranking on French school
of engineering*

35

student clubs

*Ranking of Usine Nouvelle

5

Campuses

96%

of graduates find a job
in less than 2 months

2 700

students

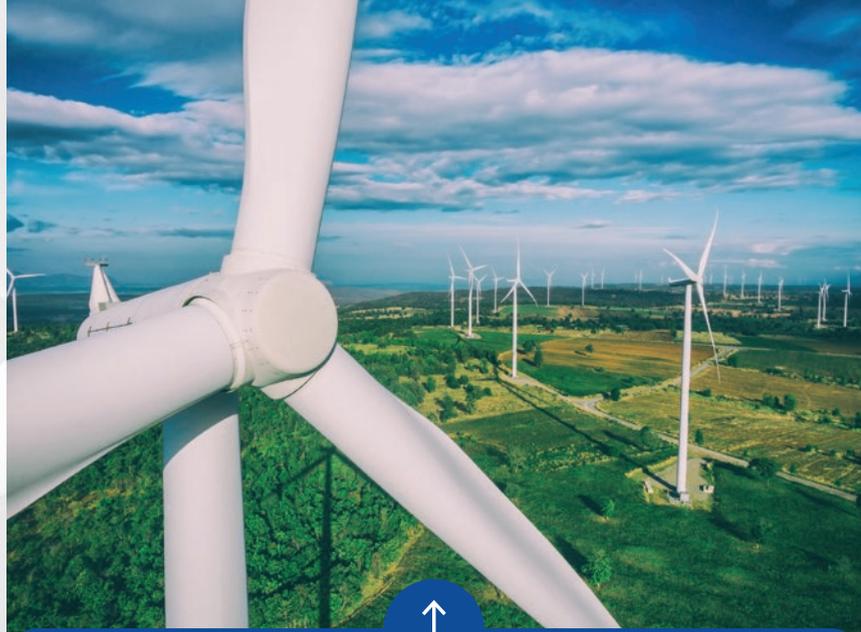
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Incubator

SOME OF OUR PARTNERS

Vinci Energies /
Bouygues Energies
& Services / Engie Ineo
Fayat Energie Services
Eiffage Energie /
Schneider Electric /
ORANGE / SNCF / EDF /
RTE / Enedis / RATP /
Cisco / Sopra Steria /
Siemens PSA / Bouygues
Telecom / Thales /
Airbus / Sopra Steria
Aerospace / Daher /
Zodiac / Ariane Group /
Safran / Dassault

ESME AREAS OF EXPERTISE



ENERGY TRANSITION

Energy costs, energy independence, the environmental impact of production and consumption require not only that we look to new sources of energy, but also to new ways to transport, store and distribute energy intelligently.



TRANSPORT AND MOBILITY

Mobility involves optimizing transport in terms of time, energy, cost, comfort and safety. The transport of the future, from aeronautics to hybrid vehicles, from drones to self-driving public transport, is subject to these challenges and will call on electronic technologies, nanotechnologies, digital technology, all of which are taught at ESME.

SMART CITIES

The city of tomorrow is smart and connected and environment friendly. Infrastructure and the way it is managed must adapt to the needs of citizens and the environment while using cutting-edge technologies. Smart objects are just the beginning of this smart way of life.

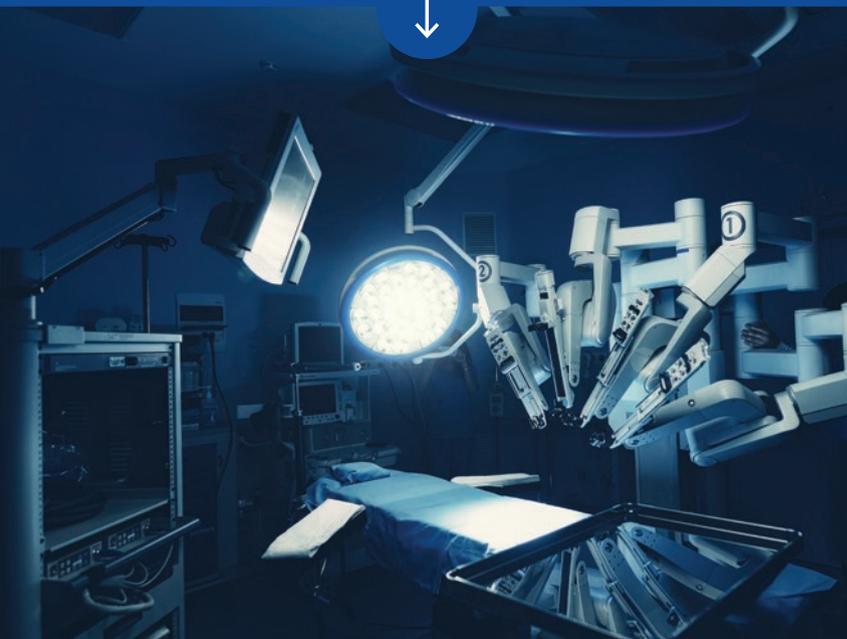


AI & CYBERSECURITY

Digital intelligence is at the heart of the global challenges of today and tomorrow. Connected objects, big data and artificial intelligence are proof that the digital revolution is in full swing. We train our engineers to take an active part in this transformation.

BIOTECHNOLOGY AND HEALTH

The world of medicine is experiencing major challenges. It is up to the engineers of tomorrow to work with medical experts towards developing new tools for assisting patients. Robotics and programming technologies are perfectly well-suited to these new needs.



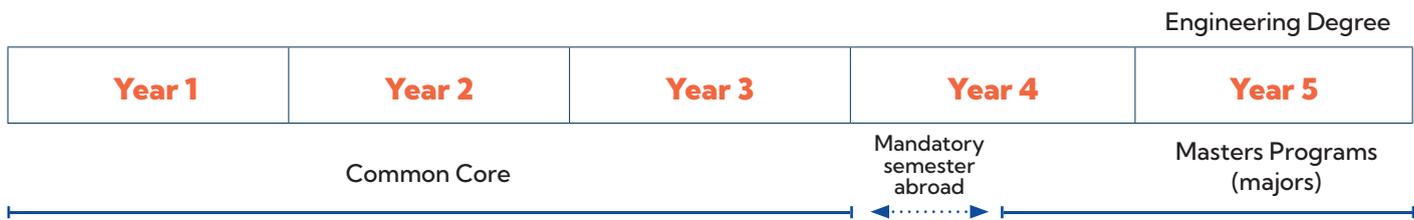
ROBOTICS

Technologies, as well as advanced control systems for complex mechatronic systems, and the development and design of industrial, home and biomechanical robotic systems.

Students in Robotics will be acquiring skills in pattern recognition, 3D modeling, artificial intelligence, motion sensors, communication and control command systems, through collaborative robotics and connected objects.

ESME ACADEMIC ORGANIZATION

ESME SCHOOL OF ENGINEERING (5 YEARS)



INTERNATIONAL STUDENTS CAN ENROLL IN ONE OF THE FOLLOWING PROGRAMS:

- > 5 year Engineering Degree program: recruitment year 1 and obtention of the Engineering Degree after a 5-year curriculum.
- > Master's Degree: recruitment year 3 and enrollment in a 2-year Master's Degree, with the obtention of the Engineering Degree, equivalent to a Master's Degree program in Engineering.

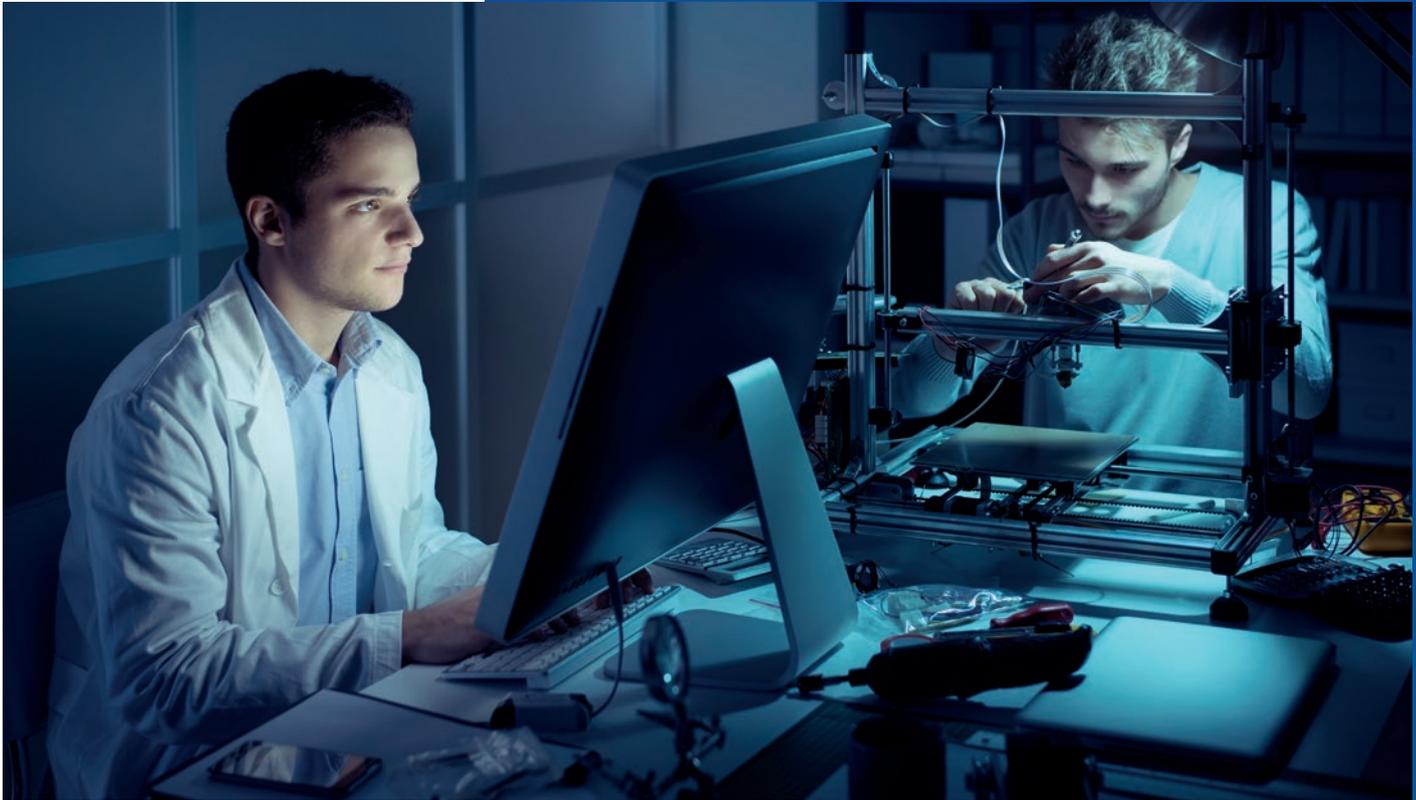
ESME follows the European academic calendar, with two semesters (September-January and February-June) /year. Full-time students earn ECTS* 30 credits per semester.

THE ENGINEER TITLE

The title of "graduate engineer" is controlled and protected by law. ESME delivers its engineering degree following approval from the CTI, overseen by the French Ministry of Education which ensures the quality of education programs.

* Mandatory semester for the five years engineering program, but not for 2 years Masters programs

** 2 ECTS Credit = 1 US Credit



RESEARCH AT ESME

Our strategy ensures coherence and continuity of research and training activities, while taking into account social and environmental aspects.

Research at ESME takes several forms ranging from fundamental research to energy transition and technology transfer. ESME partners with key players in both industry and academia.



ESME RESEARCH LAB, THE RESEARCH TEAM AT ESME

The ESME Research Lab brings together associate professors and research engineers to cover a large spectrum of themes in one of the following sectors:

- Health and personal assistance, assistance on diagnostic, therapeutic decision-making and support systems for people lacking autonomy,
- Mobility and communications, green transportation, road safety, telecommunications and network infrastructure;
- City of the future, in connection with smart networks and virtualization, eco-design of infrastructures and smart manufacturing,
- Digital Intelligence, focused on UX/UI (User experience/User Interface) and Cloud Computing,
- Calculations and modeling, with dynamic systems modelling, computer engineering and electromagnetic modelling.

A SCHOOL WITH A

OPPORTUNITIES FOR INTERNATIONAL STUDENTS

21st century engineers cannot make career plans without an international experience. For this reason, ESME is going 100% global.

All ESME students must complete a semester abroad in the fall semester of their 4th year: in addition to cultural awareness, a stronger command of English and of the local language of their country of mobility, this gives future engineers the global mindset they need to tackle today's world challenges.

Prior to their semester abroad, ESME offers students the possibility to follow an "international section" program at the undergraduate level, 100% taught in English (Mathematics, Physics, interdisciplinary research, computer science...).

ESME also offers the possibility to follow the common core in English taught by native speakers. At the graduate level, students choosing to pursue their studies in English may choose between 3 majors:

- Cybersecurity
- Internet of Thing and Smart Cities
- Electric vehicles



GLOBAL OUTLOOK

OPPORTUNITIES FOR INTERNATIONAL STUDENTS

ESME has developed partnership agreements with more than 60 institutions across the 5 continents, allowing the development of active incoming and outgoing mobility and contributing to the internationalization of the School and its curriculum.

1 / FIVE YEAR PROGRAM

International students have the opportunity to study as full-time degree students and obtain the French Engineering diploma, equivalent to a Master's degree in Engineering, provided they meet set requirements.

2 / MASTER DEGREE PROGRAMS

3 degree programs are currently offered in English:

- Master's Degree of Engineering, Cybersecurity (Engineering Degree, 2 years post-Bachelor)
- Master's Degree of Engineering, IoT & Smart cities (Engineering Degree, 2 years post-Bachelor)
- Electric Vehicles (Engineering Degree, 2 years post-Bachelor)

3 / EXCHANGE OPPORTUNITIES

International students can come to ESME within the framework of an existing student exchange agreement. Each course they take and validate gives them credits they will use to pursue their home studies in their institution.

2 Exchange programs on offer:

- Undergraduate exchange program : an international program 100% taught in English by native or bilingual teachers
- Graduate exchange programs: students may choose courses from the 3 majors : Cybersecurity, IoT & Smart cities and Electric vehicles.

4 / SUMMER SCHOOL

Each year in July the ESME Summer School in Robotics and Digital Arts attracts an increasing number of students from all over the world.

5 / RESEARCH INTERNSHIP

We offer international students the opportunity to work on a specific engineering project in one of our dedicated labs for periods ranging from 1 to 4 months, under the supervision of a professor from ESME. In an effort to strengthen cooperation and develop new collaborations, this type of project is offered in priority to our partner institutions and is usually supervised jointly by researchers from the two universities.



ESME FIELDS OF STUDY

6 STUDY OPTIONS – 16 MAJORS, INCLUDING 3 TAUGHT 100% IN ENGLISH

- Urban IoT & smart cities
- Cybersecurity
- Power Conversion Management



100%
taught
in English

INTERNATIONAL CONNECTION



- Mechatronics
- Embedded systems
- New generation smart networks
- Artificial Intelligence

INNOVATION



- Design for industry 4.0
- Engineer in digital design

ENGINEERING DESIGN



- Renewable energy and smart grids
- Hybrid engines and smart grids
- Energy conversion

ENERGY & THE ENVIRONMENT



- Biomechanics and medical robotics
- Digital technology and health

BIOTECH & HEALTH



- Double Degrees – ISG Business School:
- Financial engineering and statistics
 - Big Data and digital marketing

ENGINEER MANAGER



FULL FIVE YEAR PROGRAM

A multi-disciplinary curriculum involving a balanced science and engineering coursework (lectures, practical laboratory work and projects), management skills and industrial know-how.

YEAR 1, YEAR 2 AND YEAR 3

In year 1, students start the core engineering curriculum and hone their project and research skillset. In addition to the core general engineering curriculum, students get to choose a track to discover various aspects of engineering.



YEAR 4 AND YEAR 5

In Year 4, the students may choose their major among the following :

- Cybersecurity

(100% English-taught) : Analysis of most aspects of cybersecurity, including software vulnerability, web attacks, networking threats, operating systems and smart electronic cards security issues. It addresses data protection and integrity techniques, defense strategies and attack methodologies.

- IOT and Smart cities

(100% English-taught) : at the crossroad of IoT, networking, cybersecurity, data science and design. data science and design.

- Power Conversion Management

(100% English-taught) Learn to design a power converter, size an electrical conversion chain, choose and implement a motor control system, deploy the electrical installation of a building, or manage large-scale power conversion projects for companies and organizations.

WE ALSO OFFER 13 OTHER MAJORS IN FRENCH

- Innovation:

Mechatronics, Embedded systems, Virtualization & smart networks, AI, Big data;

- Engineering in designing:

Design for industry 4.0, DIGITAL DESIGN ENGINEERING;

- Energy & Environment:

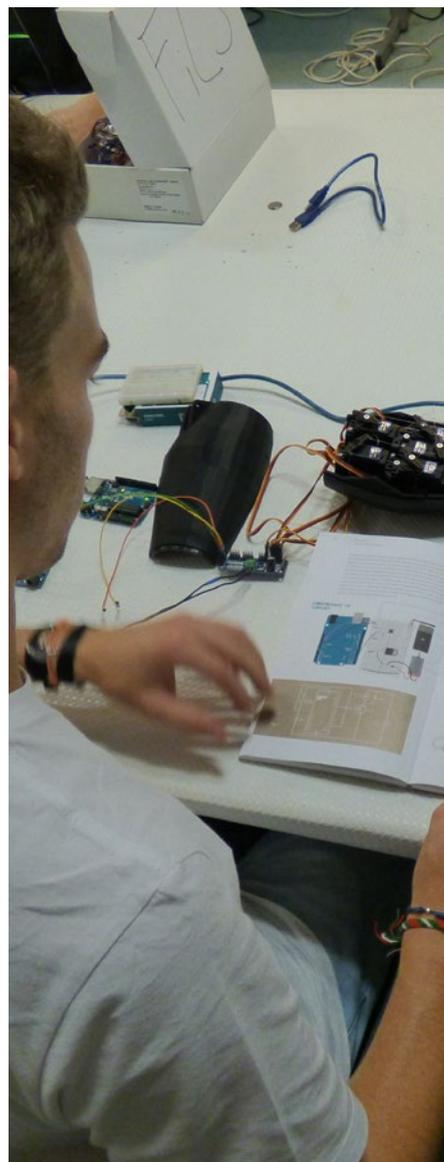
Renewable energy & smart grids, hybrid engines & smart grids, energy conversion;

- Engineer Manager:

Dual degree with ISG Business School, Financial engineering & statistics;

- Biotech & Health:

Biomechanics & medical robotics, Digital technology & health.



ADMISSION REQUIREMENTS

A recognized high school Diploma.

DEGREE DELIVERED

National Engineering Degree (Master's Degree of Engineering)

MASTERS PROGRAMS

URBAN IOT & SMART CITIES



100% taught in English

PRESENTATION AND OBJECTIVES

Today, IoT is the major driver of growth in the telecommunications market. Smart devices have become innovation enablers in all industrial fields (transportation, energy, surveillance, industrial logistics, agriculture, healthcare, consumer electronics).

These numerous options mean that companies developing products and services are making important strategic decisions combining their prediction of how markets will evolve and how they will meet this evolution through IoT. As a consequence, the demand of competences in this new and evolving landscape is increasing.

The Smart Cities and Urban IoT program graduates engineers with technical expertise in the IoT infrastructures (licensed and unlicensed connectivity), networking, cybersecurity and data science, as well as with a developed sense of the value chain of IoT and data, and of the opportunity and challenges that they represent.

ESME has chosen to focus its programs on mobile technologies, the heart of 21st century engineering education: Urban IoT & Smart Cities, digital intelligence and data; health and well-being and renewable energy. With over a century of recognized expertise, ESME is on its way to becoming a world leader in IoT and big data education for the next generation of engineers.

International students will also take French language classes to begin or continue learning French, in order to reach a B1 level as required by the National Commission for Engineer Title.



COURSES OUTLINE – KEY FEATURES

2 years, including 3 semesters of coursework and 1 semester of internship (industry or laboratory)

YEAR 1	YEAR 2
Telecommunications networks, Java programming , Database	Interconnection of devices
UNIX / Introduction to IoT	Data collection and manipulation (Big Data Intro, datamining machine learning, etc)
C programming	
Introduction to Cybersecurity	Urban IoT (Wireless sensor net lab, Embedded Linux, Java programming for IoT, etc)
Microsystems	IoT security
Cloud Architecture	LPWAN Network (LoRaWAN, Sigfox, LTE-M, NB-IoT)
Java and Python programming	Project
Radio propagation	Soft skills and languages (Professional English for job seekers, French language)
Networks and services	Internship (industry or lab internship, 6 months)
Data Acquisition	
Project (practical engineering project)	
Soft skills and languages (international project management)	
TOEIC preparation, technical English, French language	

PRE-REQUISITES

> A bachelor's degree or equivalent in related fields

- > Proven knowledge in the following fields:
- Introduction to computer networks (TCP/IP networks)
 - Coding (any language)
 - Signal processing

MASTERS PROGRAMS

CYBER- SECURITY



100% taught in English

PRESENTATION AND OBJECTIVES

The program of Cybersecurity aims at teaching students knowledge and solid skills in the specification and design of secure systems and the analysis of potential risks.

Specifically, students will understand and apply methods and techniques to investigate vulnerabilities of a given system. Scanning techniques and Penetration testing will be taught from both theoretical and practical points of view.

In addition, the program focuses on systems security management and audit. A variety of teaching methods are considered during the learning process including classes, specialized seminars, conferences, case studies, practical sessions in computer labs, hackathons, tutorials, projects, and self-learning. Students may participate in international challenges around one of the cyber security domains (Systems, Networks, Telecommunication, Software, Web, and/or Hardware).

International students will also take French language classes to begin or continue learning French, in order to reach a B1 level as required by the National Commission for Engineer Title.



COURSES OUTLINE – KEY FEATURES

2 years, including 3 semesters of coursework and 1 semester of internship (industry or laboratory)

YEAR 1	YEAR 2
Basic of Computer networks	Advanced networking and IT
Python programming , Database, Linux	Network security, Forensics
C programming	Active directory issues, reverse engineering
Microsystems	Rootme/HTB challenges, hardware and wireless security
Power Electronics	ID management, blockchain, Cloud DevOps, etc.
Power Converters	Project
Data visualization (Python)	Soft skills and languages (Professional English for job seekers, French language)
Networks and services	6 month Internship (industry or lab internship)
IT security (Intro to Cybersecurity, Hacking	
CTF, Secure programming for App development	
Risk analysis, cryptography, Web hacking	
Project (practical engineering project)	
Soft skills and languages (international	
Project management, TOEIC preparation	
Technical English, French language)	

PRE-REQUISITES

> A bachelor's degree or equivalent in related fields

- > Proven knowledge in the following fields:
- Introduction to telecommunication
 - Introduction to operating systems (application with Linux)
 - OOP (C++, Python, or Java)

MASTERS PROGRAMS

POWER CONVERSION MANAGEMENT



100% taught in English

PRESENTATION AND OBJECTIVES

Power conversion is at the crossroads of the transitions of our era, as companies need to migrate to renewable energies and improve their energy efficiency.

With over a century of experience in the field of energy, ESME has developed specific skills to train engineers in energy production and distribution control, energy conversion for sectors such as civil engineering, transportation including electric and hybrid motor solutions. The school's expertise and the excellence of its training in the field of energy transition are recognized by major companies in the industrial world.

Learn to design a power converter, size an electrical conversion chain, choose and implement a motor control system, deploy the electrical installation of a building, or manage large-scale power conversion projects for companies and organizations.

ESME's Power Conversion Management major trains engineers capable of designing energy optimization systems and managing their implementation in very diverse and high-demand sectors: space, aeronautics, automotive, data, robotics, etc.

International students will also take French language classes to begin or continue learning French, in order to reach a B1 level as required by the National Commission for Engineer Title.



COURSES OUTLINE – KEY FEATURES

2 years, including 3 semesters of coursework and 1 semester of internship

YEAR 1	YEAR 2
Renewable Energy Technologies	Power Electronics Conception
Control - Instrumentation	Power Conversion Chain Sizing
Soft Skills	Charging technologies for EV systems
+ Implementation Project + Practical Training	+ End of the Year Project + Senior Year Internship

PRE-REQUISITES

> A bachelor's degree or equivalent in related fields

SUMMER SCHOOL: BECOME A MAKER



DEVELOP YOUR OWN ROBOT AND BRING IT HOME!



Join our digital manufacturing labs (E-Smart Labs) and immerse yourself in an innovative and creative learning environment. Use our cutting-edge technology tools and learn new skills from our experts. Meet and connect with the leading French maker community.



PARIS CENTER LAB

With more than 40 collaborative labs and 3 000 startups, Paris is a key-player in the world tech startup major league.

COURSES AND WORKSHOPS:

- Prototyping
- Digital Manufacturing
- Interactive and Algorithmic Design (Processing)

- Electronics (Arduino)
- CNC
- Design
- CAD 3D Printing
- 3D Modeling
- Survival French

ACTIVITIES

Explore Paris like never before: startups, fablabs and incubators, Versailles, Bateaux Mouches, Stand-Up Comedy Show, etc

PRE-REQUISITES

Applicants must have completed at least two years of higher education in the fields of Science and Technology.

Credits: 6 ECTS

Dates: 3 first weeks of July

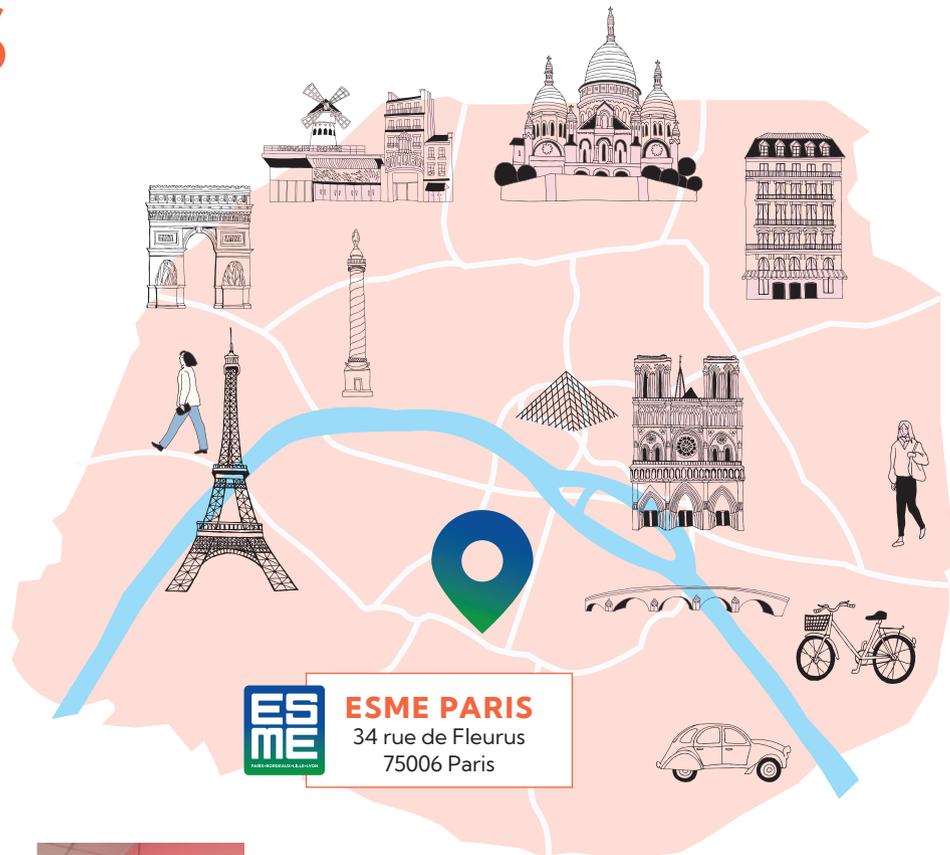
WANT TO KNOW MORE?

Visit www.esme.fr/en/summer-school

A CAMPUS IN THE HEART OF PARIS

PARIS CENTER CAMPUS

Our campus is located in the very center of Paris, in Saint Germain des Près, home to Paris's most vibrant intellectual life, as well as its lovely Luxembourg Gardens.



LIFE AT ESME

DEDICATED SUPPORT FOR INTERNATIONAL STUDENTS



BUDDY PROGRAM

The International Development Office at ESME recruits French student buddies for international students in order to facilitate their academic and social integration into school life.



A DEDICATED TEAM

The student coordination team of the International Development Office does its utmost to support every international student from the first steps before their arrival to their last day at the school.



FRENCH CLASSES

Studying at ESME gives international students the opportunity to learn French while completing their scientific studies.

At ESME, French as a Foreign Language is taught by professional French language instructors. Classes are adapted to students' levels, based on the Common European Framework Reference for Languages (CEFR).



CULTURAL ACTIVITIES

Cultural and social activities are also organized throughout the year to support international students' integration to the school and to life in France.



STUDENTS CLUBS

Sport, humanitarian, leisure, robotics, business... More than 35 student clubs bring students together at least once a week. These clubs allow ESME students to cultivate their leadership skills, sense of responsibility, and creativity. Students clubs are a strong source of personal fulfilment for each student at ESME.



STUDENT TESTIMONIALS



« ESME Summer School definitely exceeded my expectations, it was a perfect ratio of knowledge, science and fun. The staff and the professors were the nicest and made sure each and every one of us felt good and were always there to help us with anything.

We were able to explore quite a number of places along with learning to create a robot from scratch, which definitely brought all the students closer and definitely gave us something we would remember forever. In my opinion, it's an experience of a lifetime which one should definitely go for. »

**Kaushika / Summer School Student
Manipal Academy of Higher Education**



« As an exchange student at ESME, I had the chance to follow interesting classes taught by skillful teachers especially in IoT and Smartcities.

When I arrived in France, I did not speak a word of French but thanks to language classes taught at ESME, I am now able to have a basic conversation in French!
Merci l'ESME ! »

**Gabriel / Exchange Student at ESME -
Mauá Institute of Technology (Brazil)**

ESME INTERNATIONAL NETWORKS

ESME is also an active member of key national and international higher education networks that promote and facilitate international university exchange programs:





LIFE IN PARIS

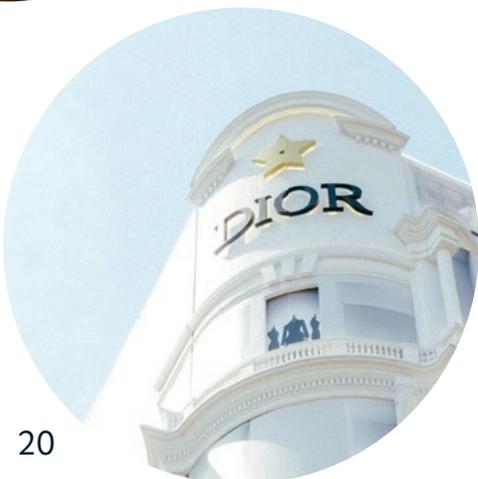
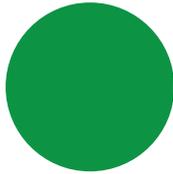
The ESME Paris campus near the Luxembourg Gardens is just steps away from some of the most exciting places the city has to offer!

PARIS. COME EXPERIENCE ITS JOIE DE VIVRE!

The city of lights offers international students the opportunity to experience her unique cultural life: after a delicious bistro meal prepared with all the French savoir-faire, you may want to take a stroll down the Champs Elysées or you may want to stay a little longer in front of the Mona Lisa in the Denon wing of the Louvre Museum.

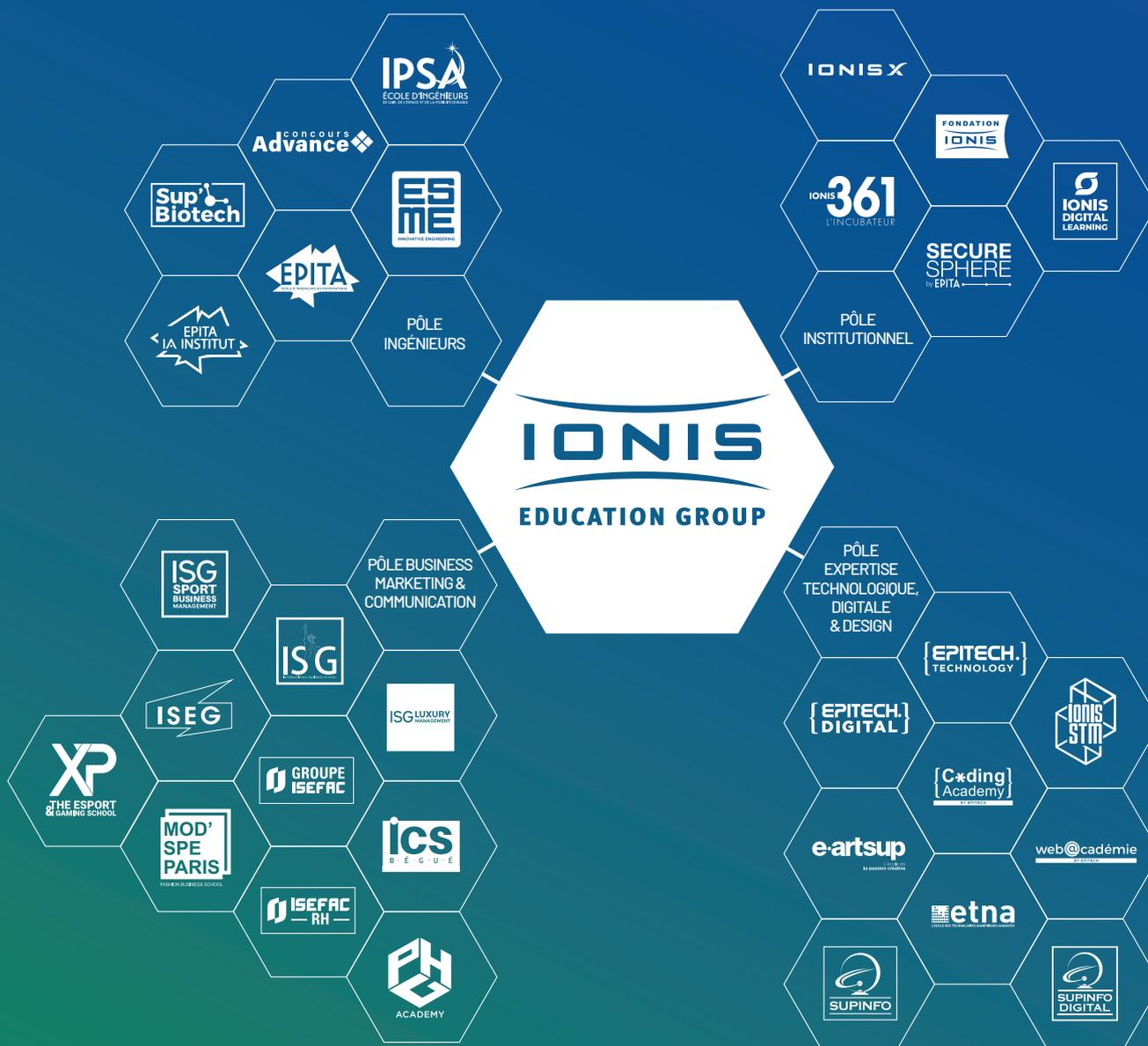
Or maybe your taste for fashion will take you to Rue Cambon where Coco Chanel started her maison. A detour by Avenue Montaigne may take you where Christian Dior founded his fashion brand, and you might even come face to face with some of Paris Saint Germain players shopping for a new suit. You could go see them play at le Parc des Princes, their home grounds in West Paris located a few blocks away from Stade Roland Garros and the Eiffel Tower.

Bien sûr, you may just want to enjoy the coffee flavored atmosphere of Parisian cafés, but beware! you just might run into one of Paris festive jazz bands and, just like James Baldwin and Ernest Hemingway before you, stay a little longer than you expected.



Former la Nouvelle Intelligence des Entreprises

Paris • Bordeaux • Caen • Lille • Lyon • Marseille • Montpellier • Moulins • Mulhouse • Nancy • Nantes • Nice
 Rennes • Saint-André (la Réunion) • Strasbourg • Toulouse • Tours • Berlin • Tirana • Bruxelles • Cotonou
 Barcelone • New York • Genève • Madrid (ouverture prochaine) • Zurich (ouverture prochaine)



Founded in 1980 by Marc SELLAM, IONIS Education Group has today become the leading private-sector higher education group in France. The 29 schools and entities it comprises in 27 cities across France and abroad bring together almost 30 000 students in the fields of business, marketing, communication, management, finance, data-processing, computing, digital applications, aerospace, energy, transport, biotechnology, innovation and e-sports ... IONIS Education Group's mission is to craft New Intelligence for Enterprise, both today and in the future. The principle values instilled in the Group's future graduates are an outward-looking international perspective, a keen awareness of the import of innovation and an entrepreneurial mindset which embraces adapting to change. It is these values which will turn them into key actors in tomorrow's economy, joining ranks with our Alumni networks which already represent over 80 000 members.

www.ionis-group.com



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A private School of Engineering founded
in 1905 and recognized by the French Commission
on Engineering Credentials.

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