

WIDEN YOUR HORIZONS

**ENGINEERING GRADUATE
SCHOOL IN PARIS**

WELCOME TO ISEP!

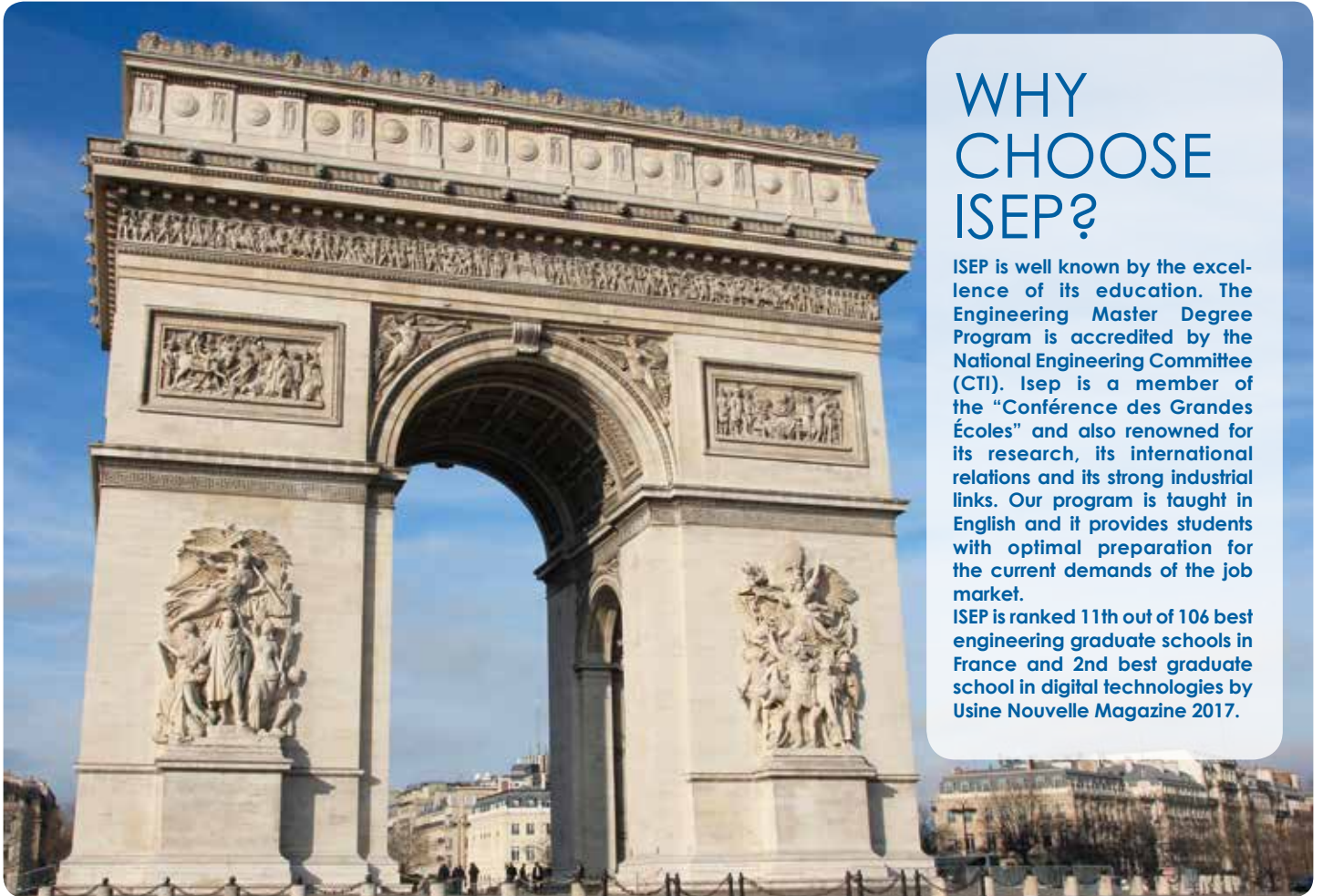


Dieudonné Abboud
ISEP General
Managing Director



ISEP is a French engineering graduate school in digital technology, known as a “Grande École d’Ingénieurs”. ISEP trains very high-level graduate engineers who receive a thorough training in Electronics, Telecommunications & Networks, Software Engineering, Signal-Image Processing and Humanities, providing them with the required knowledge and skills to meet the needs of businesses. Since 2008, ISEP has been offering an international program taught fully in English which allows international students to obtain the Engineering Master Degree. Thanks to a strong partnership with the companies in related industries, this program includes a professional internship.





WHY CHOOSE ISEP?

ISEP is well known by the excellence of its education. The Engineering Master Degree Program is accredited by the National Engineering Committee (CTI). Isep is a member of the "Conférence des Grandes Écoles" and also renowned for its research, its international relations and its strong industrial links. Our program is taught in English and it provides students with optimal preparation for the current demands of the job market.

ISEP is ranked 11th out of 106 best engineering graduate schools in France and 2nd best graduate school in digital technologies by Usine Nouvelle Magazine 2017.

RESEARCH

The research laboratory of ISEP, the LISITE (Laboratoire d'Informatique, Signal et Image, Télécommunication et Electronique), is composed of 3 teams : MINARC, which works in micro, nanoelectronics and radiocommunications, SITe, which conducts research on Signal, Image and Telecommunications and RDI, which manages research and development in information sciences. The laboratory maintains close relations with industrial partners and universities and participates in projects funded by the French government and the European Union.

INTERNATIONAL

More than 400 international students per year demonstrates the attractiveness of ISEP. The school has more than 120 university partnerships in 5 continents. ISEP also welcomes many international professors from prestigious universities like Stanford, Berkeley or IISc...

INDUSTRIAL LINKS

Built around the real needs of the business world, ISEP graduates engineers benefit from an excellent reputation. They are particularly appreciated by industrial firms for their

ability to become quickly operational and efficient. Moreover, 150 lecturers coming from various industries are taking part in the training of our students.

STUDENT ACTIVITIES

ISEP also has many student clubs ranging from sports to sciences and technology... Among them, the ISEPA student association is in charge of the development of cultural exchanges with international students (please see page 5), the Junior ISEP association offers consulting services and it is one of the best junior companies among graduate schools.

ISEP ENGINEERING MASTER DEGREE PROGRAM



The ISEP Engineering Master Degree Program is a 4-semester program. This degree is recognized by the French government, accredited by the national French engineering committee CTI. In addition, it is recognized as an international Master degree within the European Bologna scheme. As proof of its international excellence, ISEP has received the label EUR-ACE in 2012.

STUDENT CAN CHOOSE ONE OF THE FOLLOWING SPECIALIZATIONS:

- **Embedded Systems.....P6**
- **Software Engineering.....P8**
- **Wireless Telecommunication and IoT SystemsP10**

The program is open to graduates with a Bachelor's degree in Science/Engineering or to students who are in the last year of University in the relevant disciplines e.g. Electrical Engineering, Electronic Engineering, Telecommunications, Computer Science, Computer-Engineering, Information Technology, etc.

HOW TO APPLY?

Complete the online application form and upload the following documents:

- ID photo
- Copy of passport
- Curriculum Vitae
- Statement of purpose
- 2 letters of recommendation
- Copy of transcripts for each university previously attended as well as certified translations into French or English, including a copy of the degree
- TOEFL (minimum score 550PB/213CB/79iBT) or equivalent test (IELTS...)

APPLICATION DEADLINE: July 15th

USEFUL INFORMATION

Housing

ISEP helps international students to be housed in a residence hall, a private room or a flat, thanks to our private housing database.

Pre-arrival Information

We recommend you arrive 2 weeks before the program starts.

Upon enrollment, you will be given the ISEP "Guide for International Students". It will give you practical information about administrative procedures, living expenses, transportation, health insurance, etc.

In addition, all ISEP students will receive an "ISIC card". It offers a lot of advantages: discounts on planes or trains travel, car rental, hotels, restaurants, leisure activities, etc...

FOR FURTHER INFORMATION :

For more information about the ISEP Engineering Master Degree Program, please contact:

Phone: +33 1 4954 5267 or +33 1 4954 5224

Fax: +33 1 4954 5201

E-mail: international@isep.fr

Website: <http://en.isep.fr>



Created in October 2012, ISEPA is run by a dynamic and motivated team willing to help students coming to ISEP from all around the world. In a nutshell, ISEPA's mission is to welcome them and make sure they find their way quickly in Paris.

Throughout the year, the team organizes activities and visits, while trying to erase the cultural and language barriers by creating moments of exchange between the French and international students. Foreign students will discover French culture thanks to the Christmas Day for instance but will also be able to share their culture for the Chinese New Year, Diwali Festival and other cooking events.



ISEPA's particularity is to accompany students in their professional projects (helping them to write a resume and letter of motivation for example). ISEP is truly the place where students can share and cultures can blend.



If you are an international student, ISEPA is the perfect place for you to discover the beautiful French culture and take part in ISEP's exciting student life!



You can easily contact ISEPA on the Facebook group "ISEPA international students" or using the website : www.isepa.fr.



JOIN US!



EMBEDDED SYSTEMS



OBJECTIVES

The embedded systems are the heart of automatic devices in our daily life. The design of embedded systems represents an economical stake for manufacturers : it increases the value of equipments and improves the competitiveness of companies. France has several worldwide industries in aerospace, in military and space industry, in energy, in rail, in telecommunications, automotive etc. which have been users of embedded systems for decades : EADS, Thales, Airbus, Renault, etc.

The embedded systems major addresses the design, the implementation and the management of complex systems (aircraft, cars, trains...). The competences involved are the design of standardized and reliable functioning hardware and software devices/objects. The acquired knowledges cover the fields of electronics and software engineering at system level design.

JOB PROSPECTS

Equipement manager, system expert, project manager, embedded platform architect, embedded technologies expert/support manager, embedded applications architect, Software Development expert, Qualification/validation Expert, Test expert, integration expert/manager, process & methods/quality/certification expert.



COURSE CONTENT

SEMESTER 1

PROJECT-BASED LEARNING IN ELECTRONICS AND SIGNAL

- Analog electronics: signal conditioning, analog filter, power management
- Digital electronics: Microcontroller based sensor management, bluetooth link
- Fourier series and transform, Sampling, digital filtering

NETWORK FUNDAMENTALS

- Network communication, Communication channel
- Layer approach, OSI model, TCP/IP model
- Network devices, Network addressing models

ELECTRONICS OF THINGS

- Deepening on Microcontroller
- Battery management, low power design, Power conversion
- Wireless link, protocols and capabilities low power
- Green communication design, System implementation.

DATA ACQUISITION AND PROCESSING

- Data types: qualitative, quantitative
- Deterministic data processing: Data transforms, filtering, linear prediction
- Random data processing: Distributions, estimation, measure errors; correlation...

ENGLISH LANGUAGE COURSE
FRENCH LANGUAGE COURSE

SEMESTER 2

RADIOFREQUENCY SYSTEMS:

- Radio wave transmission and propagation
- Design of RF systems
- Advanced topics in RF systems

ELECTRONIC MICROSYSTEMS

- Instruction set architecture
- Logic design, Computer arithmetic
- CPU design, Memory hierarchy
- Multicore and GPU models

COMPUTER MICROSYSTEMS

- C language programming: Memory allocation, Pointer and API
- Operating system description: process/thread/memory/supervision, shell & system programming

MANAGEMENT TRAINING

- Economics principles, Intercultural relations
- Corporate organization, International sales

ENGLISH LANGUAGE COURSE
FRENCH LANGUAGE COURSE

SEMESTER 3

SAFETY AND RISK ANALYSIS

- Failure trees – failure density, failure rate.
- Reliability of components, of boards, of systems, life duration, physical failure analysis - methods and tests.
- Redundant systems, serial, parallel, vote, triplication.
- Coded systems.
- Standards on quality, standards on safety.
- Electromagnetic compatibility of systems.

SYSTEM CONSTRAINTS AND IMPLEMENTATION

- Methodology development cycles and systems
- Life cycle of software, of hardware
- System Simulation, tools for formal proof
- Real-time UML

PROJECT

- The project is composed of an advanced case study. The students will be called upon to use the knowledge, design techniques and tools that they learnt through their courses.

MANAGEMENT TRAINING

- Supply and Demand, Firms and Markets
- The Government and the Economy
- Macroeconomics, Monetary and Fiscal Policy
- The Open Economy

FRENCH LANGUAGE COURSE

CHOOSE YOUR 2 COURSES AMONG:

Automatic control/Reliability

- System model, state space, optimum command theory
- States representation
- Reliability of components & cards

Connected and Autonomous Vehicles

- Connected cars and urban equipment
- Deep learning and automatic car driving
- Sensor, Vehicular Ad-hoc Network, Security

Medical Robotics

- Kinematics of medical robots
- Imaging guided medical robots
- Tracking and surgical navigation

Programming Languages and Compilers/Formal Approaches

- Abstract Syntax Trees
- Compilation algorithms
- Proof of program properties, model-checking
- Typed programming languages, lambda calculus

SEMESTER 4

INTERNSHIP

The internship with an international company will enable students to display valuable professional skills and attitudes developed during the three academic semesters. ISEP will help you in finding an internship. Companies usually give a stipend to the trainees.

SOFTWARE ENGINEERING



OBJECTIVES

With the rapid development of computerization and networks in our daily life, the software development is unavoidable. The needs of talented software engineers with a good expertise and capacity for technology monitoring are required to tackle new markets and to innovate in software.

The software engineer is an expert who can adapt himself/herself in any environment. He/She is involved in the design, implementation, development of software in several industrial domains. He/she has a global view and a large knowledge from hardware to algorithm layers.

JOB PROSPECTS

IT consultant, IT project manager, expert of development in major industrial groups (Banks, Automotive, Aircraft...) or start-up, R&D in software industry (IBM, Google, Microsoft...)

COURSE CONTENT

SEMESTER 1

PROJECT-BASED LEARNING IN IT AND IoT

- Database management system : relational and object models, database schema, queries
- WEB architecture : client, server, communication protocols
- HMI : ergonomics, dynamic contents generation, formatting
- Propagation & Antenna, Digital transmission, Link budget

WEB TECHNOLOGIES

- Client-side Web application: Java Servlet, Java Server Pages, Cookies, Sessions, JDBC, MVC
- Server-side Web application: WEB development methods and process, HTML, CSS, Javascript; HTML5, CSS3/4, Frameworks and Javascript tools, AJAX

NETWORK FUNDAMENTALS

- Network communication, Communication channel
- Layer approach, OSI model, TCP/IP model
- Network devices, Network addressing models

ENGLISH LANGUAGE COURSE
FRENCH LANGUAGE COURSE

SEMESTER 2

DATABASES AND BIG DATA

- Advanced querying techniques
- Non-relational databases

ADVANCED ALGORITHMS AND PROGRAMMING

- Graph theory, algorithm design
- Advanced Java: compound design patterns, network programming and functional programming

MULTIMEDIA APPLICATIONS

- Image & Video Analysis, 1D medical signal analysis
- OpenCV, Classification, Feature extraction

COMPUTER MICROSYSTEMS

- C language programming: Memory allocation, Pointer and API

- Operating system description: process/thread/memory/supervision, shell & system programming

MANAGEMENT TRAINING

- Economics principles, Intercultural relations
- Corporate organization, International sales

FRENCH LANGUAGE COURSE
ENGLISH LANGUAGE COURSE

SEMESTER 3

DISTRIBUTED PROGRAMMING AND ARCHITECTURE

- Typology of distributed systems
- Distributed applications properties : interoperability, scalability / elasticity, load balancing, consistency, fault tolerance
- Communication : Protocols, Topologies
- Concurrent programming
- Distributed algorithms & application patterns

PROGRAMMING LANGUAGES AND COMPILERS

- Lexical, syntactic, semantic analysis
- Abstract Syntax Trees (AST), type inference
- Compilation algorithms, compilers structures (AST visitors)
- AST transformation and code generation

FORMAL APPROACHES

- Logical inference and proof-as-programs correspondence.
- Proof of program properties, Model-checking
- Typed programming languages, lambda calculus

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MANAGEMENT TRAINING

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- The Open Economy

FRENCH LANGUAGE COURSE

CHOOSE YOUR 2 COURSES AMONG:

Mobile development

- Introduction to the dedicated services for mobiles
- Handsets capabilities and market overview
- Android development basics & tutorials
- Project

Advanced WEB Technologies

- Software infrastructures and Web services
- Enterprise and information systems architecture

Audit and Risk Management

- Data security, Secure Programming
- Main application vulnerabilities (Cross scripting (XSS), SQL injection, ...)

Machine Learning

- Linear predictors, convex learning
- Gradient descent, Kernel Methods
- Support vector machine, Decision trees

3D, Mixed and Augmented Reality

- Mixed Reality, Augmented Reality, Camera calibration models
- 3D modeling
- Tracking technologies, Real-time visualization
- Augmented Reality systems design

Medical Robotics

- Kinematics of medical robots
- Imaging guided medical robots
- Tracking and surgical navigation

SEMESTER 4

INTERNSHIP

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WIRELESS TELECOMMUNICATION AND IOT SYSTEMS



OBJECTIVES

The Wireless Telecommunication and IoT Systems specialization presents all the necessary building blocks for the design, the planning, the deployment and the optimization of mobile wireless communication and connected object networks, as well as digital techniques for transmission and communication.

The Wireless Telecommunication and IoT Systems engineer is an expert that can advise IoT clients on the technologies to choose to inter-connect objects. He/she has the know-how to implement the next generation technologies by operating the highly efficient networks.

JOB PROSPECTS

R&D engineer, Integration Engineer, Validation Engineer, Research Engineer, Telecommunication Support Engineer, Technical Sales Engineer, Telecom Project Manager

COURSE CONTENT

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ENGLISH LANGUAGE COURSE
FRENCH LANGUAGE COURSE

SEMESTER 2

IoT NETWORKS

- IoT Networks: requirements, classification, security aspects
- Body Area network
- Autonomy and Miniaturisation aspects
- Project on conception and deployment of connected objects.

ROUTINE PROTOCOLS AND LOCAL NETWORK SWITCHING

- Static & dynamic routing
- Distance-Vector routing protocols

- Link-State routing protocols, Fine-Tuning Routing Protocols,
- Access Control List, PTP connections, NAT, DHCP

NETWORK SECURITY

- Implementation of different security methods: authentication, remote access
- Securing access using firewalls and selection of associated network architectures (DMZ, NAT)
- Securing Wireless Networks: UMTS...

MANAGEMENT TRAINING

- Economics principles, Intercultural relations
- Corporate organization, International sales

ENGLISH LANGUAGE COURSE
FRENCH LANGUAGE COURSE

SEMESTER 3

CONVERGENT SERVICES AND TECHNOLOGIES

- Voice over IP (signalling, addressing, ...)
- Unified communications, NGN, IMS
- Cloud Computing

SYSTEM CONSTRAINTS AND IMPLEMENTATION

- Methodology development cycles and systems
- Life cycle of software, of hardware
- System Simulation, Tools for formal proof
- Real-time UML

PROJECT

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MANAGEMENT TRAINING

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FRENCH LANGUAGE COURSE

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- Android development basics & tutorials
- Project

Machine learning

- Linear predictors, convex learning
- Gradient descent, Kernel Methods
- Support vector machine, Decision trees

Data Processing and High Speed Communications

- Advanced techniques of redundancy
- Compression, cryptography
- Optical & Satellite networks

Connected and Autonomous Vehicles

- Connected cars and urban equipment
- Deep learning and automatic car driving
- Sensor, Vehicular Ad-hoc Network, Security

SEMESTER 4

INTERNSHIP

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Great reasons to apply to ISEP in Paris

Starting salary of **44,000 €** on average

100% of students employed after graduation

About **400** international students per year

More than **120** partnerships worldwide in **43** countries

150 lecturers coming from within the industry

30 student clubs and organizations

Corporate partnership with more than **500** companies
Internship (1 semester)

A dynamic alumni network (more than **6 150** alumnis)

www.isep.fr

Engineering Graduate School in the heart of Paris!

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