

# JUNIA

Grande  
école  
d'ingénieurs



**Master of Science and Engineering  
English-Taught Courses  
2020-2021**



**JUNIA ISEN**

# GENERAL INFORMATION

## *Master of Science and Engineering Program*

*Junia ISEN is Junia's Graduate School of electronics and digital technology. Interested students must have a background in related scientific disciplines. Junia ISEN places students at the crossroads of technology, its applications, and societal issues. Junia ISEN allows each student to reach their full potential by helping reveal their talent through tailored programmes, global-mindedness and interaction with the professional world.*

Students pursuing a Master's degree choose one of three specialisations:

- › **Big Data,**
- › **Embedded Electronics,** or
- › **Software Engineering.**

*The courses below are common to all Junia ISEN Master programmes.*

### MASTER 1 - FALL SEMESTER

ECTS

Java 1	3
Technical Project S1	7
French as a Foreign Language	3

### MASTER 1 - SPRING SEMESTER

Technical Project S2	7
Three-month Internship	6

### MASTER 2 - FALL SEMESTER

French as a Foreign Language	2
Innovation Project	9

### MASTER 2 - SPRING SEMESTER

Final Industrial Internship	30
Six-month Professional Experience	
Written Report and Oral Defense	

**JUNIA** ISEN

# BIG DATA

*Master of Science and  
Engineering Program*

*Big Data describes sets of data being so voluminous and complex that traditional data-processing application software is no longer able to manage the information.*

*Big Data presents one of the greatest IT challenges of our era and many experts have made Big Data their R&D priority.*

*AIM  
Digital marketing, mobility, health, environment...*

*JOB OPPORTUNITIES  
Chief data officer, business intelligence manager, data scientist, data analyst, data miner, master data manager, data protection officer...*

## Contact

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## **English-Taught Courses 2020-2021**

### MASTER 1 - FALL SEMESTER

ECTS

Network & System Base	3
Java 1	3
Data Report, Communication and Visualisation	3
Advanced Statistical Analysis	3
Artificial Intelligence	3
Quantum Communication	2
French as a Foreign Language	3
Technical Project	7

### MASTER 1 - SPRING SEMESTER

Metaheuristics	3
Advanced Machine Learning	3
Data Base	3
Quantum Computing	2
Technical Project	7
Three-month Internship	10

### MASTER 2 - FALL SEMESTER

Cloud Computing and Architecture	3
Hadoop & Spark Ecosystem	3
IT Risk & Management	3
Secured Network Architectures	3
Urbanisation of IT Services	2
French as a Foreign Language	2
Innovation Project	9

**LEARN MORE**

[isen-lille.com](http://isen-lille.com)

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# EMBEDDED ELECTRONICS

*Master of Science and  
Engineering Program*

*Embedded Systems (ES) manage precise tasks in complete autonomy and in real time, providing solutions in a variety of economic sectors : energy, health, transport... ES covers a wide range of skills in the fields of energy consumption, integration, data processing, and communications.*

*This professional profile trains engineers who master the material aspects (electronics) and software implications (embedded systems or mobile applications) of high-tech systems that improve our everyday lives.*

#### AIM

*Aeronautics, automobile...*

#### JOB OPPORTUNITIES

*Embedded systems designer, communication electronics technician, integrator, tester, systems project leader, systems integrator, embedded applications architect...*

#### Contact

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## English-Taught Courses 2020-2021

### MASTER 1 - FALL SEMESTER

ECTS

Advanced Digital Signal Processing	3
Java 1	3
Analog Circuit Design	3
Digital Programmable Circuits: FPGA & VHDL	3
Wireless Technologies & Applications	3
Technical Project S1	7

### MASTER 1 - SPRING SEMESTER

Hands-on 32-bit ARM Microcontrollers	2
Power Electronics	3
Microwave Circuits	3
Digital Microelectronic Circuits	3
Audio Signal Processing	2
Technical Project S2	7
Three-month Internship	10

### MASTER 2 - FALL SEMESTER

Advanced Electronics	3
Mixed-signal Integrated Circuits for Audio Applications	3
High Frequency Electronics	3
Real-Time Computing for Embedded Systems	3
Automotive Electronics	2
Innovation Project	9
French as a Foreign Language	2

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# JUNIA ISEN

## SOFTWARE ENGINEERING

*Master of Science and  
Engineering Program*

*Software and applications development encompasses all elements of the design chain of high-tech products: in embedded systems middleware and infrastructures. The quantity of data to be processed is ever larger, and methods of collection, storage and analysis are in constant progression.*

*This professional profile trains engineers specialized in cutting-edge technologies, such as Big Data and Cloud Computing.*

**AIM**  
*Mobile applications, Cloud, e-commerce, Web 3.0...*

**JOB OPPORTUNITIES**  
*Applications designer, website developer, IT solutions integrator, test engineer, systems and network architect, IT project leader, DSI (Director of Information Systems), facilities engineer, network operations engineer, web architect, multimedia developer...*

### Contact

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## English-Taught Courses 2020-2021

### MASTER 1 - FALL SEMESTER

ECTS

Network & System Base	3
Java 1	3
Operating Systems	3
Web Technologies	3
Artificial Intelligence	3
Quantum Communication	2
Technical Project S1	7
French as a Foreign Language	3

### MASTER 1 - SPRING SEMESTER

Java 2	3
Android	3
Data Base	3
UNIX	2
Quantum Computing	2
Network Programming	2
Technical Project S2	7
Three-month Internship	10

### MASTER 2 - FALL SEMESTER

Cloud Computing and Architecture	3
JEE	3
IT Risk and Management	3
Object Oriented Design	3
Urbanization of IT Services	2
Innovation Project	9
French as a Foreign Language	2

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LEARN MORE

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[www.junia.com](http://www.junia.com)

## CONTACT US

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*Junia, Graduate School of Engineering*

*(Établissement d'Enseignement Supérieur Privé d'Intérêt Général)*

