

Software & Data

TAUGHT IN FRENCH



/ AIMS

The aim is to train operational engineers in the engineering and management of information systems. Their training prepares them to be the key players in the development of future applications of information and communication technologies (ICT).

/ ACQUIRED SKILLS

The software and data engineer is capable of designing a software solution based on a client's specifications, taking into account the technical constraints related to the prevailing technological environment, and of building a comprehensive software product that conform to quality standards and meets the requirements. The ESEO Engineer is also capable of managing an entire project with agility, from planning to team management.

/ CAREER OPPORTUNITIES

After completing their training, engineers who have followed this major often start their activity as development engineers, product engineers, junior consultants, technical sales engineers, and many others. They subsequently move on to jobs as technical experts, software architects, project managers, information systems security managers (ISSM), information systems directors (ISD), and more.

Companies in the industrial and tertiary sectors, such as design, consulting, service and engineering companies, software publishers and solution integrators offer a large number of positions matching all these professions.

COURSE UNITS

/ SEMESTER 8

- **SD Project:** 112 hrs – 10 ECTS
- **Validation:** 28 hrs – 2.5 ECTS
- **Management and Information Systems:** 28 hrs – 2.5 ECTS
- **Relational Databases:** 28 hrs – 2.5 ECTS
- **Web Technology and Architecture:** 28 hrs – 2.5 ECTS
- **English:** 28 hrs – 2.5 ECTS
- **Transversal Skills:** 28 hrs – 2.5 ECTS

+ 2 Course Units from:

- **Decision Support:** 28 hrs – 2.5 ECTS
- **Infrastructure:** 28 hrs – 2.5 ECTS
- **Security:** 28 hrs – 2.5 ECTS

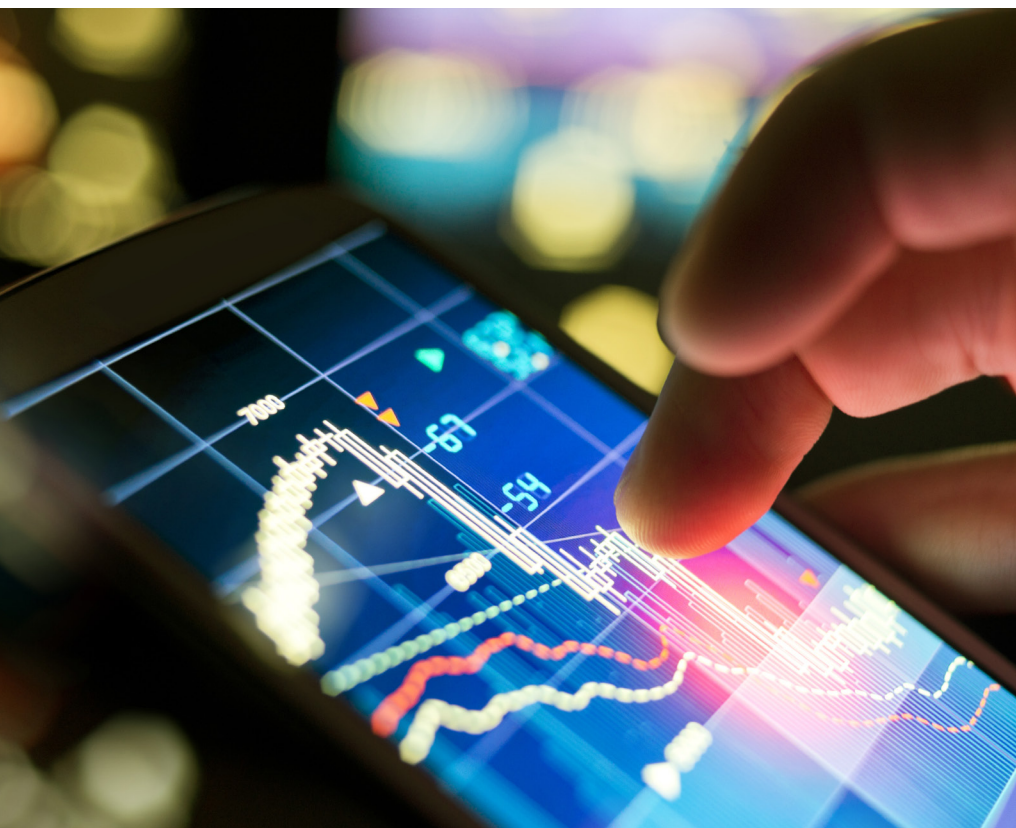
/ SEMESTER 9

- **Final Year Project:** 160 hrs - 14 ECTS
- **Object-Oriented Software Design:** 28 hrs - 2 ECTS
- **Software Quality:** 28 hrs - 2 ECTS

+ 6 selected Course Units*:

168 hrs - 12 ECTS
(each Course unit = 28 hrs - 2 ECTS)

* To be chosen from the elective course units listed



Elective Course Units

Elective course units should be chosen from the list below. Only one course unit can be chosen per numbered sub-table.

COURSES	PROVIDED BY
ELECTIVE COURSE UNIT 1	
Wireless Communication	Electronics & IoT
Protocols for the IoT	Electronics & IoT
Green IT	Software & Data
OS for Embedded Systems	Embedded Systems
Cryptography	Cloud, System & Security
ELECTIVE COURSE UNIT 2	
Architecture of Data Center	Cloud, System & Security
Antennas and Software-defined Radio (SDR) 4*	Electronics & IoT
Android Project	Software & Data
Model-driven Engineering (MDE)	Embedded Systems / Software & Data
ELECTIVE COURSE UNIT 3	
Efficient & Safe Programming	Embedded Systems
Information Systems & Business Strategy 1*	Software & Data
Offensive Security	Cloud, System & Security
Monolithic Microwave Integrated Circuits (MMIC)	Electronics & IoT
Artificial Intelligence 1*	Software & Data
Linux Platforms	Electronics & IoT / Embedded Systems
Embedded Security for the IoT	Electronics & IoT
ELECTIVE COURSE UNIT 4	
Docker Infrastructure	Cloud, System & Security
Real-time Programming	Embedded Systems
Batteries and Energy Harvesting 4*	Electronics & IoT
Client-side Web Development using REACT	Software & Data
ELECTIVE COURSE UNIT 5	
Machine Learning for Embedded Systems	Embedded Systems
Exploration of a LoRa Tracking IoT Navigation System	Electronics & IoT
Creativity & Innovation	Software & Data
Network Security	Cloud, System & Security
Android Software	Electronics & IoT / Embedded Systems
VMWare Infrastructure (VCenter)	Cloud, System & Security

COURSES	PROVIDED BY
ELECTIVE COURSE UNIT 6	
Formal Modelling	Embedded Systems
Embedded Linux 5*	Electronics & IoT / Embedded Systems
Infrastructure Monitoring	Cloud, System & Security
Web Technologies and Continuous Integration	Software & Data
Engineering of Communication Systems	Electronics & IoT
ELECTIVE COURSE UNIT 7	
Information Systems and Business Strategy 2*	Software & Data
Infrastructure Design & Security	Cloud, System & Security
Artificial Intelligence 2*	Software & Data
Advanced Testing	Embedded Systems
Rapid Prototyping	Embedded Systems
Advanced Processor-based Architectures	Electronics & IoT
Multiphysics Systems	Electronics & IoT
ELECTIVE COURSE UNIT 8	
Advanced Databases & NoSQL	Software & Data
Communications in Embedded systems	Embedded Systems
Systems-on-Chip (SoC) Digital Design 4*	Electronics & IoT
Security for Embedded Systems	Software & Data
.NET Platform	Software & Data
Cloud Orchestration: Openstack	Cloud, System & Security
ELECTIVE COURSE UNIT 9	
Information Systems and Business Strategy 3*	Software & Data
Applied Cryptography for Developers (AC4D)	Software & Data
Systems-on-Chip (SoC) Analogue Design 5*	Electronics & IoT
Artificial Intelligence 3*	Software & Data
Security Audit	Cloud, System & Security
Operational Security	Embedded Systems

1* - 2* - 3* Students choosing «Information Systems & Business Strategy» and «Artificial Intelligence» should take all 3 course units in tables 3, 7 and 9
 4* Compulsory Course Units for Electronics & IoT students
 5* One of these two Course Units is compulsory for Electronics & IoT students, depending on the block chosen in semester 8