PARIS-CACHAN CAMPUS

MAJOR

Digital Engineering Management

#SOFTWAREENGINEERING #DEVOPS #INFORMATIONSYSTEMS
#CYBERSECURITY #CONNECTEDOBJECTS #CLOUDCOMPUTING
#VIRTUALREALITY #BLOCKCHAIN #BIGDATA
#ARTIFICIALINTELLIGENCE

epf

ENGINEERING SCHOOL
Creating the future together

COURSE OBJECTIVES

The Digital Engineering Management Major prepares student engineers to understand how Information and Communication Technologies (ICT) are integrated into the functioning of society and transform its processes. You will be prepared in four main areas: software development, data analysis and processing, information systems management and cyber security.

The objective of this major is to **produce generalist engineers with the skills needed to manage and execute complex projects using ICT.** The engineers graduating from this programme are high-level computer scientists whose knowledge and expertise are perfectly adapted to the expectations of society. You will be able to propose and carry out digital transformation projects. In addition to a certain versatility and flexibility, this major will provide you with the technical elements as well as the necessary hindsight and intellectual maturity to make you a true specialist in the IT field.

COURSE DESCRIPTION

The Major in Digital Engineering Management spans two academic years structured around two academic semesters and two semesters of internships: a student-engineer internship in Year 4 and a 'final year project' internship in Year 5.

- ▸ **In Year 4,** students acquire a solid foundation in the fundamentals of digital engineering.

- ▸ **In Year 5,** students choose several specialist modules that will guide them towards a career path that matches their interests.

YEAR 4 . COMPULSORY MODULES

Tools for the engineer — 82 hours I 6 ECTS

- Employment law
- Applied statistics
- Business Game
- Company visits & conferences
- English

Understand the world of work and master the cross-disciplinary skills required for success.

Software Engineering I — 96 hours I 6 ECTS

- Java language
- Mobile devices
- Dynamic web
- Application design

Acquire app design and development skills.

Development environments — 48 hours I 4 ECTS

- Unix/Linux systems
- Git and version control
- Networks & infrastructures

Understand the human environment and infrastructure of digital professions.

Information systems security — 64 hours I 5 ECTS

- Organizational security
- Operational security
- Cryptography

Understand the challenges related to cybersecurity and data protection. Integrate the «security» dimension into the management of a project.

Tech Trends — 64 hours I 4 ECTS

- Artificial intelligence I
- API architecture strategy
- Virtualization
- Introduction to quantum computing

Learn about the modern technologies enabling the digital transformation.

Project — 150 hours I 5 ECTS

- Project management
- Engineering project

Work in a team on a project linking the technical and managerial skills acquired in the major.

Engineering student internship — 5 ECTS

YEAR 5 . COMPULSORY MODULES

Tools for the engineer — 63 hours I 4 ECTS

- Communication
- Design thinking
- ERP & SAP
- Intellectual property law
- Transitioning into the workplace
- English
- Company visits & conferences

Meet digital technology professionals and learn about the tools that engineers need for employment.

Software Engineering II — 66 hours I 5 ECTS

- Java
- DevOps
- Software testing
- Embedded and real time systems

Master the methods for the design and validation of information systems and computer programs.

Data science & Big Data	70 hours I 5 ECTS
• Big Data tools • Blockchain • Artificial intelligence II • Computer vision	Develop a command of the tools for processing, storing, sending and making data available.
Project	**150 hours I 5 ECTS**
• Semester project or vocational training contract or student-entrepreneur status	Carry out a team project within a partner company or work on the creation of your own company.

YEAR 5 . OPTIONAL MODULES

. 1 OPTIONAL MODULE TO BE CHOSEN FROM

Video games & virtual reality	48 hours I 4 ECTS
• Virtual reality • Video games	Understand the concepts, challenges and methods behind the development of interactive 3D applications.
Artificial intelligence	**48 hours I 4 ECTS**
• Deep learning • Real Time decision making in video games	Knowledge of the main categories of artificial intelligences. Understanding of the issues, challenges and ethical questions related to them.

. 1 OPTIONAL MODULE TO BE CHOSEN FROM

Internet of things	48 hours I 4 ECTS
• Internet of Things (IoT) • Networks & telecommunications	Master the basics of the Internet of Things (architectures, solutions, protocols) and know how to put in place an operational architecture.
Cloud Computing	**48 hours I 4 ECTS**
• Cloud computing • Open-source software	Know how to design and deploy a cloud computing solution.

. 1 OPTIONAL MODULE TO BE CHOSEN FROM

Cybersecurity	48 hours I 3 ECTS
• Organizational security • Operational security • Security audit	Knowledge of risk assessment and management methods in information systems. Know how to test the security of networks.
Innovation & new technologies	**48 hours I 3 ECTS**
• Digital transformation • Innovation management • Chatbots & e-marketing	Study how the interconnection between people, organizations, databases and objects is transforming all professional sectors.

YOUR FUTURE AFTER THE DIGITAL ENGINEERING MANAGEMENT MAJOR:

GROWTH SECTORS

This cross-disciplinary major prepares students for support jobs in business organisations. Graduates from this course will be able to work in the sector of their choice.

JOBS OF THE FUTURE

· IT Development
· Consulting
· Management
· Data management
· IT Security
· Technology

REAL-WORLD PROJECTS TO DEVELOP YOUR EMPLOYABILITY

▸ **In Year 4,** our student-engineers are introduced to agile methods through a team project conducted on the school campus.

▸ **In Year 5,** students join an in-house innovation project team at a partner company.

Laurine LE NET
2022 Graduate

❝ After three years studying mechanics in Quebec, I hesitated quite a bit when it came to choosing my major. Mechanical engineering was great, but I didn't want to make a career out of it and the energy sector was quite tempting. I did an internship with a wind power producer to see if I really liked it.

I did some VBA Excel macros and that's when I fell in love! I loved the whole process: **how by just clicking on a button, I can perform a series of actions to obtain a result.** I tasted the beginnings of the challenges faced by a developer: searching for a solution, debugging, optimizing...

So, I tried the MIN major. For two years, **we saw a multitude of subjects related to IT: JAVA language, Cryptography, DevOps, Big data, AI, Blockchain, Virtual reality...**

It's great, you can quickly find out what you like. It really helped me to decide that I wanted to go into development. Today, I do Full Stack development at Takima and I love it! ❞

PRACTICAL DETAILS

· **Duration of studies:** 2 years
· **Location:** Troyes Campus

ANY QUESTIONS?

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