SCIENCE, TECHNOLOGY, HEALTH

M2 SIA - Advanced Information Systems

Master Computer science

ECTS
60 credits

Duration
1 year

Component
Collège Sciences et Technologies pour l'Energie et l'Environnement (STEE)

Language(s)
French, English

VAT (%)
20.0

Presentation

The SIA track trains architects and engineers of information systems who design, deploy, maintain and evolve modern information systems: flexible, intelligent, secure, and high-performing.

It meets a growing need of organisations. Of 200 Master-level work-study offers in computer science published in France in September 2026, 59% ask for at least two of the track's six skill blocks, and 89% for at least one.

Teaching is project-based, in partnership with companies and the UPPA Computer Science Laboratory (LIUPPA). Students can follow the track during initial training or work-study; **the M2 internship can be a research project leading to a PhD.**

The track is linked to the M2 Industry 4.0 of the same master's program, taught in English.

Objectives

- Train high-level information systems specialists for companies, industry, and public organisations.
- Prepare for careers as an information systems architect, engineer, and project manager in data and AI, cloud, and security.
- Develop research skills, particularly through **the M2 internship, towards a PhD** at LIUPPA or with public and private R&D partners.

Skills

The targeted skills are organised in six blocks covering the whole life cycle of an information system: its design, its data, its deployment, its integration, its security and its performance.

Design, implementation and maintenance (MBSE)

The first block relies on Model-Based Systems Engineering (MBSE): the system is described by models of its requirements, architecture and behaviour, which serve as the shared reference from design to maintenance, instead of scattered documents.

- Design flexible, scalable information system architectures that meet functional and non-functional requirements.
- Implement solutions that integrate emerging technologies into existing systems.
- Apply maintenance and audit methodologies to improve system performance, security and reliability.

Advanced data and AI

- Collect, process, analyse and visualise large volumes of data.
- Apply machine learning and deep learning techniques to solve specific problems.
- Use AI algorithms for automated decision-making.

Information technologies for deployment

- Know cloud architectures and cloud computing services (IaaS, PaaS, SaaS).
- Design and implement IoT solutions, including connectivity and devices.
- Work with continuous integration and continuous deployment tools (CI/CD).

Integration software and services

- Use APIs and web services to integrate systems and applications.
- Implement middleware solutions enabling communication between heterogeneous systems.
- Know service-oriented architectures (SOA) and microservices.

Security, privacy and robustness

- Know data protection methods, including encryption and access policies.
- Assess and manage security risks in information systems.
- Design resilient systems able to recover from failures or cyber-attacks.

Performance and quality of service

- Run load tests and optimise system performance.
- Master monitoring and performance-tuning techniques in production environments.
- Manage user experience to guarantee optimal service.

Organisation

Organization

Master 2 SIA Track

ECTS

Semester 3, Core Curriculum courses

Cyber-Physical Systems Engineering	4
Big Data and Artificial Intelligence	3
Information Systems Engineering	3
Research Initiation	2
English or French as a Foreign Language	1

Electives	
Digital transformation of information systems	• Service-Oriented Architectures • Semantic Web and Business Intelligence • Advanced Internet of Things • Advanced Cloud Computing
Sustainable supply chains	• Flow Modelling and Simulation • Data Visualisation • Information Systems • Interoperability • Supply Chain Management
ECTS	Semester 4
30	Internship in a company or research laboratory, 4 to 6 months

Open to apprenticeship

Trainings

Intership duration : 4-6 months

Admission

Admission requirements

This second year of the Master's degree is open to students after completion of the first year of a Master's degree or Diploma equal to bac+4 from a European university (minimum of 240 ECTS credits) in Engineering, Science, or Equivalent (Bachelor of Engineering, Bachelor of Science or Equivalent).

This program is open to work-study and lifelong learners and can be followed under a dual train-scheme.

Applicants must be fluent in English, both in writing and speaking. An applicant whose native language is not English has to take a recognized international English test.

English Language Requirements

Minimum required score: CECRL B2 | ***level in English***

Tuition Fees and partial exemptions

Go to the Tuition fee page

Student capacity

20

And after

Professional insertion

Sectors

Computer Science, Information Technologies, Systems Engineering, Digital Mentor, Collaborative Robots Expert, IT/OT Integration Manager, Industrial Big Data Scientist, Lean 4.0 Engineer

Fields

Industry, Research, and R&D structures

Positions

Ph.D. student and R&D Engineer

Useful info

Contacts

Coordinator

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Other contacts

The International Master's Programs Admission Office

master.programs@univ-pau.fr

Partner laboratories

LIUPPA

http://liuppa.univ-pau.fr/fr/index.html

Place

Anglet

Campus

Anglet