

MASTERS- COMPUTER SCIENCE

IN BRIEF

Type of diploma : Master degree
Ministry field : Science and Technology
Mention : Informatique

PRESENTATION

The computer science programmes offer a scientific and technical training to teach future computer scientists in the rapidly evolving field of information communications technology.

Our education programmes are directed towards both research and professional areas with a view to training computer scientists that meet the job market needs and requirements.

The programmes are taught on two distinct campuses:

- * Master course "**Internet Technologies**" delivered in Pau
- * Master course "**Big data**" delivered in Pau.
- * Master course "**Computer systems for Industrial logistics and services engineering**" delivered in Anglet - Basque Coast,
- * Master 2 course "**Industry 4.0**" delivered in Anglet - Basque Coast.

ORGANIZATION

- M2 Industry 4.0

ORGANIZATIONAL UNIT

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

PLACES

MORE INFO

Education language :
Fully taught in English

Pau, Anglet

M2 Industry 4.0

PRESENTATION



Applications are open from December 2018 to April 2019 from <https://app.e2s.univ-pau.fr/siaap/pub/appel/view/5>

The aim of this master is to train Computer Sciences and Information Technologies experts in order to be able to address the new challenges of current and future generations of digital societies. Current trends on digital technologies represented by the Internet of things, cyber-physical systems, social networks, cloud computing, big data and cognitive computing have provided the basis for a new industrial revolution named Industry 4.0.

Our **Industry 4.0 Computer Sciences Master** degree offers a 1 year, full-time postgraduate program, aimed at providing solid scientific and technological foundations in order to innovate, design and develop future digital organisations based on the new Internet of Everything (IoE) paradigm. It is suited for students planning both an academic or an industrial career and provides the theoretical basis and the practical expertise required to pursue in research or R&D organizations.

The master is fully taught in English and is hosted at the College of Sciences and Technologies for Energy and Environment (STEE) of the Université de Pau et des Pays de l'Adour (UPPA) in Anglet (France). The STEE College has been founded in the framework of the prestigious French Initiative of Excellence label I-SITE (Initiatives Sciences, Innovation, Territories and Economy), obtained by our E2S-UPPA project.

The program is carried out in close collaboration with the LIUPPA research laboratory and several R&D organisations, where scientific and experimental practicals will be performed. Students will also benefit from the global research environment and administrative support of the [University Pau & Pays Adour](#), the [E2S I-site program](#).

OBJECTIVES

MORE INFO

ECTS credits : 60

Type of education

- * Foreign students
- * Ongoing training
- * Work-study training
- * Initial training

Number of students : 20

Internship : Mandatory (5-6 months)

Internship abroad : Optional

LEARN MORE

[More information](#)



PARTNER LABORATORIES

[LIUPPA](#)



- * Prepare students at an advanced specialised level to meet present and future scientific and technological challenges in digital industries and enterprises.
- * Develop research skills to engage in quality and successful research,
- * Prepare students for leading positions in private and public organisations in research and development departments.

SKILLS

At the end of this program, the students in the « **Industry 4.0 Computer Sciences Master** » will be able to:

- * Identify and analyse the functional and non-functional requirements of digital organisations (industries and enterprises).
- * Design and model multi-dimensional architectures resulting from the integration and coordination of Internet of Everything entities (IoT, Data, People, Services and Cloud Computing infrastructures) aimed at satisfying the digital organisation requirements.
- * Develop and implement a proof of concept system integrating the various Internet of Everything dimensions.
- * Design and conduct experiments in order to test and evaluate Industry 4.0 systems.
- * Review, analyse, and interpret the body of scientific literature, contemporary issues and innovations computer sciences and information technologies disciplines.
- * Carry out a research project aimed at developing a state of the art and at identifying and solving scientific and technological challenges in the context of the Industry 4.0.

ADDITIONAL INFORMATION

- * **Program intensity:** Full-time
- * **Duration:** 1 year
- * **Languages:** Fully taught in English
- * **Delivery mode:** On Campus at both STEE College and LIUPPA Laboratory (Anglet)

TRAINING CONTENT

Master 2		
Computer Sciences: Industry 4.0		
Academic Semester		
Course Title	Course Description	ECTS
Industry 4.0 cyber-physical Systems Engineering	This course is designed to provide students with theoretical and practical skills to understand and perform requirements analysis and systems design, including systems engineering referential models and methodologies for Industry 4.0 cyber-physical systems.	40h 4 ECTS
Business Intelligence and Business Analytics	This course aims at providing students with the foundations and developing competences in designing data flow paths allowing the construction of multi-dimensional data warehouses	40h 4 ECTS

	<p>as well as the implementation of machine learning techniques in order to implement diagnosis, prediction and prescription models for smart systems.</p>	
<p>Service and Micro-Service Oriented Architectures</p>	<p>This course aims at providing students with the concepts and approaches for understanding and designing distributed systems allowing them in particular understand and to apply service-oriented and micro-services-oriented approaches for designing and developing heterogeneous systems and system of systems. Integration and interoperability solutions will be studied and applied.</p>	<p>40h</p> <p>4 ECTS</p>

Cloud Computing Services and Technologies	<p>The aim of this course is to provide students with the knowledge and competences in order to design and develop scalable, secure and cost-efficient infrastructures, platforms and software as a services for digital organisations.</p>	<p>40h</p> <p>4 ECTS</p>
Internet of Things	<p>The aim of this course is to provide students with the knowledge and competences in order to design and develop of Smart IoT systems based on the integration and orchestration of sensors and effectors objects of cyber-physical systems.</p>	<p>40h</p> <p>4 ECTS</p>
Semantic Web, Advanced Databases and Open Linked Data	<p>This course aims at providing students with basic skills for designing and developing</p>	<p>40h</p> <p>4 ECTS</p>

	structured and unstructured advance databases in order to cope with the heterogeneous data planes dimensions required by the generations of information systems.	
Research Initiation	This course aims at providing students with scientific methodologies and project management competences for developing a real industrial and/or research oriented project	30h 3 ECTS
French as a Foreign Language, English		30h 3ECTS
INTERNSHIP		
Research internship	This internship is intended to allow students applying a scientific approach and project management methodologies for an academic	30 ECTS

or industrial research project.

Examples of application domains :
Industry 4.0, Smart Manufacturing, Autonomous Vehicles, Smart Building, Smart Enterprises including Business Intelligence and Business Analytics (Machine Learning)

TUITION FEES

- * Region Aquitaine Scholarships for non-EU students
- * E2S Talent's Academy Scholarships for all students
- * Master's scholarships

FURTHER STUDY

Sectors:

- * Computer Science, Information Technologies, Systems Engineering.

Fields:

- * Research and R&D structures

Positions:

- * PhD student and R&D Engineer

ORGANIZATIONAL UNIT

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

PLACES

Anglet

PERSON IN CHARGE

Exposito Garcia Ernesto
ernesto.exposito-garcia@univ-pau.fr