

# THE FACULTY OF SCIENCE AND TECHNOLOGY



- *From Bachelor's to Master's degrees, initial and continuing education programmes and apprenticeship*
- *Research laboratories*
- *International partnerships*
- *Employment office*

## International

UPEC's faculty of science and technology actively participates in international study and research programmes.

Students, teachers-researchers and administrative staff participate in international exchanges thanks to more than a hundred partnerships signed with universities abroad.

Our students can study or do their internship abroad in Europe (Erasmus+), the United States and Canada (MICEFA), Quebec (BCI), South America (Brazil, Mexico), Asia (South Korea, Japan, Taiwan, Vietnam), and even in South Africa.

To foster foreign students' mobility, the faculty offers classes in English in the framework of international programmes at Bachelor level in biology and in chemistry, and at Master level in mathematics, computer science and biometrics.

To support students' employment, double degrees are developed at Bachelor and Master levels with Bonn-Rhein-Sieg University of Applied Sciences, Bergische Wuppertal University, the University of Sherbrooke, the National Autonomous University of Mexico, the Lebanese University, and the University of Science and Technology of Hanoi.

Our research teams are highly invested in numerous international colloquia and seminars, and cooperate with their homologues abroad through international research projects (joint PhDs, H2020, Hubert Curien partnerships) allowing high level scientific exchanges and collaborations.

**More on:** [international-sciences@u-pec.fr](mailto:international-sciences@u-pec.fr)

## Employment office/Corporate relations

The employment office helps our students throughout their studies to find an internship, a job, or to help them write their CV.

As professional training courses and students' employment are important to the faculty of science and technology, students' professional project and experience and skills portfolio are dedicated to help every student to think about their course choice and to highlight their degree programme. Bachelor's and Master's degrees students do a compulsory year-end internship to complete the professional training. Professional training is supported by the development of apprenticeships and continuing education, particularly for employees.

The relation with the companies is the main concern of the faculty and it relies on the collaboration with the training course and the research laboratories. The involvement of professionals outside the academic world is important for the education, particularly for the Master's degree, and so, the faculty spreads the improvement advice from the economic world stakeholders amongst students. These activities are supported by the employment office through events such as conferences, business fairs, and more.

**More on:** [baip-sciences@u-pec.fr](mailto:baip-sciences@u-pec.fr)

## Key facts and figures

3,000  
students

250  
teachers and researchers

More than 70  
administrative officers  
and technical staff

8  
research  
laboratories

3  
campuses

# SUCCESSING IN SCIENTIFIC STUDIES

To encourage students' success, the faculty of science and technology has set up pedagogical support and innovations.

## Pedagogical support

- Reinforced supervisory: tutorials in small groups and a referent teacher for each group to guide and advise students
- Tutorials managed by 3<sup>rd</sup> year students throughout the semester and during revising weeks
- Continuous monitoring and final exams
- Preparation to veterinary exams
- Professionalised and multidisciplinary classes
- Consultancy services and individualised monitoring

## Pedagogical innovations

- 2-week revisions in mathematics, physics, and chemistry to update students' level
- Voting tools to conduct interactive lectures
- Telepresence robot allowing mobile video conferencing: distance learning and multi-site teaching
- Recorded classes to facilitate learning

**More on:**  
<http://sciences-tech.u-pec.fr>



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Faculty of science and technology - April 2018 - Photo credit: UPEC/N. Darphin - Conception Nathalie Barbé - Printed by Typolm

# Faculty of science and technology

University of Paris-Est Créteil - Val de Marne



FACULTÉ DES SCIENCES  
ET TECHNOLOGIE

[www.u-pec.fr](http://www.u-pec.fr)



# CURRICULUM

## Bachelors of Science (BSc)

- Mathematics
- Computer science
- Engineering
  - Electronics and computer engineering
  - Maintenance
  - Mechanics
- Physics
- Chemistry
  - Chemistry
  - Chemistry and biology
  - Chemistry and biology – international programme
- Earth and life sciences
  - Biology and environmental sciences
  - Biology and geology – teacher education programme
  - Biology and health
  - Biology and health – international programme
  - Chemistry and biology
  - Chemistry and biology – international programme

## Double degrees

- Mathematics and computer science
- Mathematics and physics

*These degrees aim at training students to double proficiencies and entail 2 diplomas.*

**More on:** [scolarite.sciences@u-pec.fr](mailto:scolarite.sciences@u-pec.fr)

## Master of Science (MSc)

- Mathematics and applications
  - Analysis and applications
  - Bezout
  - Finance
  - Probabilities and statistics
- Computer science
  - Software
- Complex systems engineering
  - Cyber–physical systems; information, intelligence, and control technologies
  - Distributed systems and networks technologies
- Signal and image processing
  - Atmospheric pollution instrumentation
  - Signals and images in medical sciences
- Optics, image, vision and multimedia
  - Biometrics – international programme

## RESEARCH



The faculty of science and technology is eager to develop both research and teaching activities.

This close connection between education and research requires at least one reference laboratory for each field of research. Eight laboratories and a research team are managed by the faculty of science and technology.

Their research activities are based on widely cross–disciplinary topics such as biology and health; chemistry, physics and materials science; mathematics, information and communication science and technology, and environmental science.

Most laboratories rely on technical platforms and develop their research programmes involving many partnerships with public and semi–public sector organisations (National Centre of Scientific Research – CNRS) and private companies, at both national and international levels.

Our research laboratories have been awarded the quality certification label "Labex–laboratory of excellence" for their works on the following topics: Bezout (models and algorithm: from discrete to continuous mathematics), Urban Futures (urban planning, architecture, environment, and transports for a sustainable city), and MMCD (sustainable construction modelling and experiment).

- Mechanics
  - Materials and structures multiscale approaches
  - Fluid mechanics and thermal transfers modelling and simulation
  - Solid mechanics modelling and simulation
- Industrial engineering
  - Industrial risks management and maintenance
- Materials science and engineering
  - Advanced materials and nanomaterials
  - Materials science for sustainable building
- Chemistry
  - Bioactive molecules chemistry
  - Molecular physical chemistry and applications
  - Functional polymers
- Environmental sciences and engineering
  - Indoor and outdoor atmospheres
  - Environmental heritage materials
  - Aquatic systems and water management

### Laboratories of the faculty:

- **LAMA:** Analysis and applied mathematics
- **LACL:** Algorithm, complexity and logic
- **MSME:** Multiscale modelling and simulation
- **ICMPE:** Paris–Est institute of chemistry and materials
- **LISA:** Interuniversity laboratory of atmospheric systems
- **LEESU:** Water, environment and urban systems
- **IEES Paris:** Institute of ecology and environmental sciences of Paris
- **CRRET:** Cell development, tissue repair and regeneration

### Research team:

- **PLMC:** Physics of fluids and complex matter

### Many researchers of the faculty are also part of other laboratories of the university:

- **CERTES:** Thermal and environmental systems study and research centre
- **IMRB:** Mondor institute of biomedical research
- **LISSI:** Images, signals and intelligent systems

- Agriculture, food and environmental sciences and technologies
  - Food–related health risks
  - Integrative biology
  - Biological engineering for the environment

- Secondary school teacher education (the courses are organised by the faculty of science and technology and the Institute of Education)
  - Mathematics
  - Earth and life sciences

## International programmes

- BSc in chemistry and Earth and life sciences
  - Double degree in chemistry and biology: compulsory mobility in year 3 at Aachen University of Applied Sciences (Germany)
- BSc in Earth and life sciences
  - Double degree in biology and health: compulsory mobility in year 3 at Bonn–Rhein–Sieg University of Applied Sciences (Germany)
- MSc in environmental sciences and engineering
  - Double degree: compulsory mobility in year 1 at Bergische Wuppertal University (Germany)
- MSc in chemistry
  - Double degree: compulsory mobility in year 2 at the University of Sherbrooke (Canada)
- MSc in materials science and engineering
  - Double degree in advanced materials and nanomaterials: compulsory mobility in year 2 at the University of Sherbrooke (Canada)
- MSc in computer science
  - Double degree in software: compulsory mobility in year 2 at the University of Sherbrooke (Canada)
- MSc in optics, image, vision and multimedia
  - Biometrics international programme: available in e–learning
- MSc in astrophysics
  - SPACE–Earth–Observation–Astrophysics–Satellite Technologies double degree: mobility in year 1 or 2 in Vietnam at the University of Science and Technology of Hanoi
- MSc in complex systems engineering
  - Double degree in cyber–physical systems, information, intelligence and control technologies with the Lebanese University

# APPRENTICESHIP



At the faculty of science and technology, students in respect of age regulations can combine study at the university and training in a company gain job–specific skills through apprenticeships.

Apprenticeship is based on a partnership between the apprentice, the company, and the training centre.

Apprentices are not only paid but are also delivered the same degree as initial education students. Thus, students immerse themselves into the working world in view of a lasting professional integration.

80% apprentices are employed at the end of their apprenticeship.

## Apprenticeship in BSc and MSc

- 3<sup>rd</sup> year BSc in engineering
- Professional bachelor's programme in chemistry and material physics – metal and alloys treatment course
- Professional bachelor's programme in topography – roads and networks course
- MSc in computer science – software course
- MSc in industrial engineering–industrial risks management and maintenance course
- MSc in complex systems engineering – distributed systems and network technologies course
- 2<sup>nd</sup> year MSc in chemistry–quality analysis and assurance course
- 2<sup>nd</sup> year MSc in environmental science and engineering – air course
- 2<sup>nd</sup> year MSc in environmental science and engineering – public bodies' and companies' environment management course
- 2<sup>nd</sup> year MSc in environmental science and engineering – aquatic systems and water management course

**More on:** [alternance-st@u-pec.fr](mailto:alternance-st@u-pec.fr)

## LIFE–LONG LEARNING

The faculty of science and technology offers continuing education programmes for further studies to adult learners with adequate professional experience. Generally, all the degrees delivered by the faculty can be pursued under certain conditions through continuing education or validation of acquired experience (VAE). The following degrees are only available through continuing education programme:

- **The degree allowing access to academic scientific studies** has the same entitlement as baccalaureate degree. Holders can access academic studies or take B category civil servant exams. **The academic certificate of preparation for scientific studies (CUPES)** is offered to baccalaureate holders who, after a suspension of studies, want to improve their knowledge for a career move or to prepare to civil servants exams,

**More on:** [daeub@u-pec.fr](mailto:daeub@u-pec.fr)

- **Training contracts** are offered to jobseekers aged 26 and above and to beneficiaries of certain allowances and contracts. Employees' training period is fully funded by the company,

- **A one–year professional master's degree** for bachelor's degree holders or holders of a two–year degree after the baccalaureate having at least three years of professional experience in the field of the registered course (through an application to the validation of acquired experience),

- An innovative master's degree in English in **biometrics and new technologies** (E.G. : smartphones, web applications, etc) available online in continuing education <http://www.international-education-biometrics.org>

**More on:** [fc.sciences@u-pec.fr](mailto:fc.sciences@u-pec.fr)