Admission requirements

ENGLISH LANGUAGE REQUIREMENTS
Minimum required score: CECRL B2 level in English

FRENCH LANGUAGE REQUIREMENTS
None but French language courses are included in the formation

ADMISSION REQUIREMENTS
• 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.
• Applicants must hold at least 4 years university level in chemistry, physical-chemistry, and/or material sciences.

Contact
For any supplementary information or questions related to application, please contact:

laurent.billon@univ-pau.fr - didier.begue@univ-pau.fr

More information:
http://formation.univ-pau.fr/m-mse-cpcm

International Welcome Desk:
http://univ-pau.fr/fr/en/welcome-desk
Overview

The selection and appropriate use of a material requires chemical expertise that draws on knowledge from the material preparation and characterization sectors, and training in interpretation and modeling of the structural and functional properties of materials. Designed specifically for students taking courses in which chemistry is the predominant subject, the CPCM curriculum offers training courses in each of these different sectors. The content of the teaching program is the result of a general synthesis concerning sustainable development and the use of innovative materials that provide a potential response to new requirements and challenges related to energy and the environment.

The teaching program, comprising lectures, supervised and practical work and case studies, is taught by university lecturers and researchers, but also by personnel from the socio-professional sector.

The practical work and case studies are done in the laboratories of the Multidisciplinary Research Institute for the Environment and Materials (IPREM CNRS UMR 5254), using high-performance and top-level apparatus. The program also includes modules that prepare students for entering the world of work, use of English in courses and for writing scientific publications, and internships in companies and academic research laboratories.

Student Learning Outcomes

At the end of this program, the students in the "Materials Science and Engineering: Chemistry and Physico-Chemistry of Materials master’s degree " will be able to:

• Prepare materials and samples,
• Use surface and volume analytical techniques to achieve a sound command of materials characterization,
• Validate, interpret and model experimental results,
• Write a synthesis report and communicate appropriately with experts,
• Produce quality research,
• Carry out a research project.

Prospects for employment or further study

SECTORS:

• Chemistry
• Energy (photovoltaic, batteries, fuel cells, artificial photosynthesis...)
• Environment (non-polluting materials, pollution control materials and storage...)
• Aeronautics (composite materials, surface treatments...)
• Building (thermal and sound insulating coatings...)
• Cosmetics & life science

FIELDS:

• Research and Development

POSITIONS:

• Research and Innovation Engineer
• PhD students

Program objectives

• Prepare students at an advanced specialized level to meet present and future challenges in specialty areas in chemistry, polymers, inorganic chemistry and modeling
• Develop engineering research skills to engage in quality and successful research
• Prepare students for leading positions in industry and government Research and Development departments:
  - Project Manager
  - Senior manager in design and development (design engineer), in production (process engineer, production engineer), responsible for quality operations or even production management
  - Technical Director (R&D)
  - Teacher-researcher (possible at the end of a doctorate)

MASTER 2

SEMIESTER 1

• Internship in research in the fields of polymer chemistry, inorganic chemistry, materials, energy, storage and conversion, physical-chemistry, theoretical chemistry 30 ECTS

SEMIESTER 2

• Natural Polymers - Biomass Valorization 4 ECTS
• Project Management - Industrial property and patents 2 ECTS
• Formulation of adhesives 2 ECTS
• Theoretical Chemistry applied to the study of materials 4 ECTS
• Theoretical Chemistry and Spectroscopies 4 ECTS
• Organic Based Nanomaterials from (nano) morphologies to advanced properties 2 ECTS

OPTIONS

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SEMIESTER 1 OPTIONS

• Materials For Energy Storage And Conversion 4 ECTS
• Materials: Nano Materials, Bio Materials And Hybrid Materials 4 ECTS
• Surface Chemistry And Interfaces 4 ECTS
• Modelling Of Materials With Specific Properties 4 ECTS
• Optical Properties Of Materials 4 ECTS
• Methods And Techniques For Polymer-based Materials Synthesis 4 ECTS

SEMIESTER 2 OPTIONS

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