SCIENCE, TECHNOLOGY, HEALTH

GREEN Graduate program "Mechanics and Physics in Porous Media (MPPM)"

Master PSCE - Physics and Simulation in Civil Engineering

ECTS
120 credits

Duration
1 year

Component
ISABTP - Institut supérieur aquitain du BTP, Collège Sciences et Technologies pour l'Energie et l'Environnement (STEE)

Language(s)
English

Presentation

The International Master's MPPM will not open next year.

Understanding the mechanics, the physics and their couplings appearing in fluid-filled porous media is a keystone for solving forthcoming challenges in Energy and Environment. Indeed, porous media are ubiquitous in many natural and industrial systems of interest in various fields of engineering such as Civil Engineering, Mechanical Engineering, Chemical Engineering, Material Engineering, Petroleum Engineering, and the Food Industry, to mention only a few.

The **MPPM** course focuses on Mechanics and Physics in Porous Media. It encompasses their experimental characterization by indirect porosimetry and direct imaging, poromechanical behavior modeling, transport properties estimation, fluid-solid couplings, and the properties of confined fluids in porous media.

This international master's degree offers multidisciplinary key courses to achieve an advanced specialist level in all areas involving porous media such as geomechanics or physics of porous materials. 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 research, in R&D structures or in companies.

Objectives

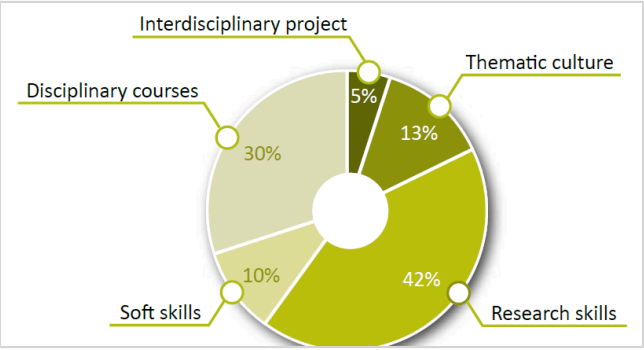
- Prepare students at an advanced specialized level to meet present and future challenges in (geo)mechanics or physics of porous media,
- Develop engineering research skills to engage in quality and successful research,
- Prepare students for leading positions in industry and government Research and Development departments.

Your university

Skills

At the end of this program, the students in the **Master's degree of Mechanics and Physics in Porous Media** will be able to:

- Justify solid expertise in the mechanics or physics of porous materials,
- Design and conduct experiments, analyze and interpret data,
- Review, analyze, and interpret the body of scientific literature, contemporary issues, and innovations in physics and mechanics area,
- Plan and define a research or R&D project to understand a physical phenomenon pertaining to the mechanics or physics of porous media.



Additional information

Scholarships

- Region Aquitaine Scholarships for non-EU students
- EIFFEL Scholarship of Excellence
- E2S Talents' Academy Scholarships for all students

The International Master Programs Admission Office

master.programs@univ-pau.fr

Organisation

Organization

M1 MPPM-SFRI S1 - Mechanics and Physics of Porous Media - Se

Thematic culture

- Conferences on Energy and Environment

Soft skills

- FLE, English, Spanish (ECTS 2)
- Project management (ECTS 2)

Research skills

- Research initiation

Core courses

- Solid mechanics: modeling and measurements (ECTS 4)
- Computational modeling (ECTS 4)
- Adsorption: modeling and measurement (ECTS 5)
- Statistical thermodynamics (ECTS 3)

Additional courses

- Numerical Project 1 : Python
- Entrepreneurship

M1 MPPM-SFRI S2 - Mechanics and Physics of Porous Media

Thematic culture

- Conferences on Energy and Environment

Soft skills

- FLE, English, Spanish (ECTS 2)

Research skills

- Research internship - 4 months

Core courses

- Characterization of porous media by direct technique (EC
- Poromechanics: modeling and measurement (ECTS 3)
- Transport: modeling and measurement (ECTS 4)
- Adsorption: microscopical approach (ECTS 2)

Additional courses

- Numerical Project 2 : R
- Entrepreneurship

M2 MPPM-SFRI S3 - Mechanics and Physics of Porous Media -

Thematic culture

- Conferences on Energy and Environment

Soft skills

- FLE, English, Spanish (ECTS 2)

Interdisciplinary Project

- Interdisciplinary Project

Research skills

- Review paper

Core courses

- Failure and non-linear mechanics (ECTS 3)
- Characterization of porous media by indirect technique (ECTS 3)

Additional courses

- Numerical Project 3
- Entrepreneurship

M2 MPPM-SFRI S4 - Mechanics and Physics of Porous Media - Se

Thematic culture

- Conferences on Energy and Environment

Soft skills

- Communication, professional integration, skills assessment

Research Internship

- Research internship - 6 months

Core courses

- Characterization project

4 ECTS

Trainings

2 ECTS

Intership : Mandatory

Intership duration : 5 months

6 ECTS

Admission

12 ECTS

Admission requirements

6 ECTS

Academic requirements

Applicants must hold a Bachelor of Engineering, Bachelor of Science or equivalent.

Graduate Program Green - Mechanics and physics in porous media

In 2022-2023, the UPPA is opening a 5-year integrated Master's/PhD program which provides research-intensive training in multiple fields, called the Graduate Program GREEN (GRaduate school for Energetic and Environmental iNnovation). Several courses of study taught entirely in English are part of this program. The Graduate Program GREEN is open to high-potential students from a variety of scientific backgrounds who have completed their undergraduate training with highest honors. To be selected, candidates must explicitly indicate in their letters of motivation their desire to integrate the Graduate Program GREEN, providing reasons for why they wish to participate in this research-focused PhD-Track.

English Language 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.

Minimum required score: CECRL B2 level in English

How to apply

Tuition Fees and partial exemptions

Tuition fees for enrolment in this Master's have been set as follows:
European student: 256€/year
Extra-European student: 640€/year
Extra fees:
In addition to academic tuition, most students must pay a student body fee (CVEC, which cost €92 in 2020-2021).

NB: *Admitted candidates in any course of study who have taken a break of more than two years from their studies will enroll via the UPPA's* **Continuing Education service** *(FTLV / FTLV). They are exempt from the CVEC, however, they may be subject to a different tuition scale.*

Student capacity

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And after

Further studies

Sectors:

- Civil engineering
- Mechanical engineering
- Material engineering
- Chemical engineering
- Petroleum engineering

Fields:

- Research and R&D structures

Positions:

- Ph.D. student and R&D Engineer

Useful info

Contacts

Head of Teaching

Christelle Miqueu

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Partner schools

ISA BTP Engineering School

http://isabtp.univ-pau.fr

Partner laboratories

IPRA - FR2952

http://ipra.univ-pau.fr

LFCR - UMR5150

http://lfc.univ-pau.fr

SIAME - EA 4581

http://siame.univ-pau.fr

Place

Anglet

Campus

Anglet

Know more

Application

https://ri.univ-pau.fr/en/studying-at-the-uppa/international-master-programs.html