

Detailed Program Facts

ACADEMIC YEAR : Our full academic year runs from September to June

APPLICATION DEADLINE : Applications are open from November to April

HOW TO APPLY : The application documents must be uploaded on the website : <http://www.univ-pau.fr/en/apply-now>

PROGRAM INTENSITY: Full-time

DURATION: 1 year

CREDITS: 60 ECTS

LANGUAGE: Fully taught in English

LEVEL OBTAINED: Master 2

HEAD OF THE MASTER PROGRAM:
Professors **Frederic Leonardi** and **Laurent Rubatat**

LOCATION: College of Sciences and Technology for Energy and Environment on the Pau campus (Pau, France)



Admission requirements

ENGLISH LANGUAGE REQUIREMENTS

Minimum required score: CECRL B2 level in English

ACADEMIC REQUIREMENTS

This course is intended for students originating from fields where physics, engineering, physics, mechanical, construction, materials in the broad sense are predominant. Applicants must hold a first year of a Master's degree or Diploma equal to BAC+4 from a European university (minimum of 240 ECTS credits).

Contact

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

frederic.leonardi@univ-pau.fr or laurent.rubatat@univ-pau.fr

INTERNATIONAL WELCOME DESK :
<http://univ-pau.fr/en/welcome-desk>

Master's degree in Materials Science and Engineering

Materials Engineering: Development, Characterization, Applications (MEDCA)



Conception : Direction de la communication - Impression : Centre de reprographie - UPPA - Mars 2021

<https://formation.univ-pau.fr/m-se-medca>

Overview

MEDCA (Materials Engineering Development, Characterization, Application) graduates will attend theoretical and practical physics-oriented courses on materials that will include Life cycle assessment (recycling) and the environmental impact (eco-designing). They will then acquire skills in the fields of polymers, composites, nanomaterials, metallic materials and ceramics.

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 Pau (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.

Student Learning Outcomes

At the end of this program, the students in the «M2 Materials Engineering: Development, Characterization, Applications (MEDCA)» will be able to:

- Participate in the development and implementation of various materials (polymers, composite materials, elastomers, nano-composites, nanomaterials) for the development of products or prototypes via 3D printing.
- Analyse material transformation techniques or processes in order to optimize the production tool.
- Carry out qualification and quality control tests to participate in the overall effort to improve the quality of production.
- Write reports, projects, and technical reports.
- Carry out expertise missions on existing products in order to identify by example the origin of the degradation of parts under industrial operating conditions.

Prospects for employment or further study

At the end of this course, the graduate in a Master SGM-IMECA will be able to quickly integrate the following fields and sectors:

SECTORS

- Production
- R&D
- Expertise
- Quality
- Design office

FIELDS

- Aeronautics
- Automotive industry
- Agri-food
- Packaging
- Railway industry
- Water sports
- Standardization and quality management

Program objectives

The MEDCA course objectives are:

- To give students Mastery of the characterization concepts and techniques of Materials Engineering with a view to training general managers in this industrial sector.
- To help students acquire skills in the fields of polymers, composites, nanomaterials, metallic materials and ceramics.

TRAINING CONTENT

M2 Materials Engineering: Development, Characterization, Applications (MEDCA)

SEMESTER 1 (30 ECTS) - From September to December

MANDATORY COURSES (26 ECTS)

- | | |
|--|---|
| • Adhesion and adhesives (34hrs) | 4 |
| • Thermoplastic elastomers & rubbers (26.5hrs) | 3 |
| • Polymers and the environment (36hrs) | 4 |
| • Designing parts 2 (56hrs) | 6 |
| • Nanocomposites and nanomaterials (36hrs) | 4 |
| • Processing of polymer materials (27hrs) | 3 |

ELECTIVE COURSES (4 ECTS) Choose 2/3 courses

- | | |
|---|---|
| • Composites based on bio-resources (16.5hrs) | |
| • Business world (21hrs) | |
| • Polymers for the living organisms (16.5hrs) | 2 |

SEMESTER 2 (30 ECTS) - From January to June

COMPULSORY INTERNSHIP

- | | |
|---|----|
| • Internship in a company or a laboratory | 30 |
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