

Master of science Applied Formulation of Polymers and Colloids

From January to March, three month courses in Macromolecular Engineering and Formulation, including experimental training and a personal project in cooperation with an industrial partner.

Courses

With the participation of industrial partners: Arkema, BASF, Dow Corning, L'Oréal, Michelin...

MODULE 1 [67H] : FORMULATION : BASIC CONCEPT AND TOOLS

- Formulation : principles and applications
- Polymers and surfactants in solution
- Polymers and surfactants at interfaces
- Sustainable chemistry, ecodesign

APPLICATIONS IN Cosmetics, Detergency, Building materials...

MODULE 2 [71H] : NANO AND MESO-ORGANIZATION IN SOFT MATTER

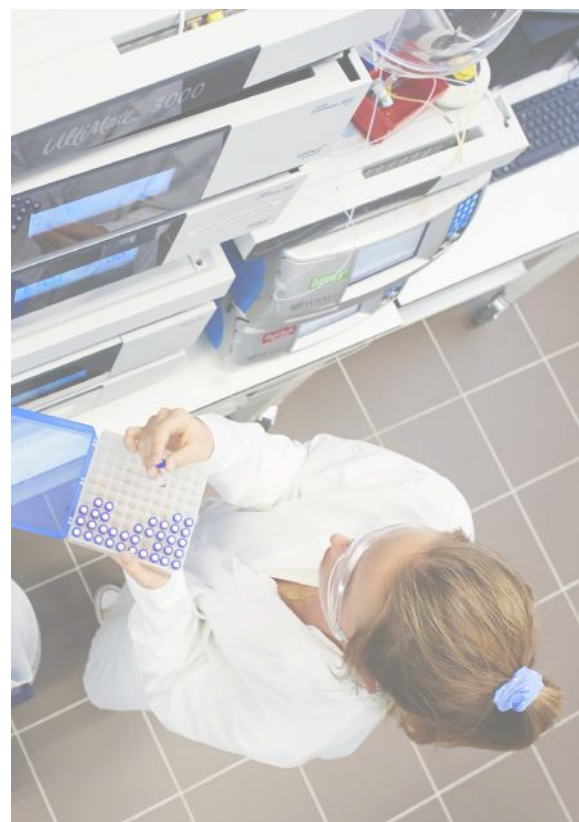
- Controlled polymerizations self-assembling
- Latex and particles
- Foams and emulsions
- Hybrid materials and nanocomposites

APPLICATIONS IN Coatings, Nanomedicine, Biomaterials...

MODULE 3 [72H] : CHARACTERIZATIONS OF FORMULATED SYSTEMS

- Imaging techniques
- Spectroscopy
- Chromatography
- Rheology
- Wave scattering

APPLICATIONS IN Polymers materials, Adhesives, Paints...



Calendar

SEPTEMBER TO NOVEMBER

International students start with a **3 months internship** in one of the academic partner laboratories.
French lessons

DECEMBER

1 month opening module to choose among : Innovation/ Geoeconomy / Marketing & purchasing / Wine & Marketing / Aromas, Flavour...

JANUARY TO MARCH

3 months courses

APRIL TO AUGUST

5 months internship

Price 7 300€
Apply online at
ensmac.bordeaux-inp.fr

Ensmac - Bordeaux INP*

Graduate school of Materials, Food Science and Chemistry

* one of the 7 graduate schools of Bordeaux INP

BORDEAUX INP

9
graduate schools*
in France



3500*
students
(selected through
national competitive exam)



12%
international
students



22
programs*
including 8 by
apprenticeship



254
faculty
members



11 joint
research
centers



140
partnerships
worldwide



The Master of Science « Applied Formulation of Polymers and Colloids », delivered by Bordeaux INP, is **fully in English** and has been established by ENSMAC - Bordeaux INP as **an answer to the rapid evolution on today's needs in industry and academics**, allowing the students to adapt efficiently to the most recent technological innovations. It is based on the well-established know-how of ENSMAC - Bordeaux INP and its partner laboratories concerning topics at the interface between Materials, Food science and Chemistry.

Programs

5 engineering training
courses (Master)

- Chemistry - Physics
- Food science
- Materials Engineering
- Structural Analysis of Composite Materials
- Food Production

3 Master
of Science

- Applied Formulation of Polymers and Colloids
- Inorganic Materials Design and Processing
- Micro and Nanotechnology

Research & Technology transfer

8 joint research
centers

In the following fields :
Chemistry, physics, Nutrition,
Neuroscience, Oenology,
Polymer, Condensed Matter,
Molecular Science, Materials
& System Integration, Nano
Objects

64 academics and
researchers

100 PhD, post-docs
2 industrial chairs

- Nanostructured materials based on carbon nanotubes or block co-polymers
- Valorization of Maritime Pine Chemistry

2 629 m² dedicated to
technology transfer activities

International

100% graduate students
with international experience

10% international students
Involved in several international programs:
Erasmus+, FITEC...

Contact
International Relations Office

international@ensmac.fr
05.56.84.65.72

Master of science Inorganic Materials Design and Processing

From January to March, **three month courses in Materials Design and Processing**, including practical case studies in laboratories and projects in cooperation with industrial partners.

Courses

With the participation of industrial partners : Arcelor Mittal, SAFRAN, ArianeGroup, LYNXTER...

MODULE 1 [62H] : FROM MATERIALS FUNCTIONS TO MATERIALS DESIGN

- Materials (Engineering alloys, composite materials, functional materials)
- AI for Materials
- Materials by design

MODULE 2 [62H] : FROM MICROSTRUCTURE MODELLING TO MICROSTRUCTURE CHARACTERIZATION

- Microstructure formation
- Phase diagram, computational thermodynamics, phase transformation modelling
- Microstructural characterisation of materials
- Non-destructive testing of structures

MODULE 3 [62H] : MATERIALS PROCESSING

- Forming processes
- Surface treatment processes
- Numerical simulation of processes
- Computer aided design (CAD)
- 3D printing

MODULE 4 [70H] : PROJECT RELATED TO PARASPORTS

- Design, conception, fabrication and characterization of disabled sports prothesis



Calendar

FEBRUARY TO MARCH

10 weeks of courses
French lessons

JANUARY

1 month opening module
to choose among : Innovation/
Geeconomy / Marketing &
purchasing / Wine & Marketing /
Aromas, Flavour...

NOVEMBER TO DECEMBER

10 weeks of courses

SEPTEMBER

6 months internship

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Master of science **Micro & Nanotechnology**

From January to March, three month courses in micro- and nanotechnology including different laboratory courses (AFM, STM, Microfluids...), a 1 week hands-on training in clean room conditions and a personal project in cooperation with an industrial partner.

Courses

With the participation of industrial partners : Arkema, BASF, Merck, Rhodia, Thalès...

MODULE 1 [76H] : FABRICATION TECHNIQUES AND CHARACTERIZATION

- Near-field scanning techniques
- Characterization techniques
- High-resolution spectroscopy
- Nano and microfabrication techniques
- Engineering of surfaces and interfaces
- Nanobiotechnologies

MODULE 2 [62H] : NANO-OBJECTS AND AUTO-ORGANISATION

- Inorganic, polymer and metal nanoparticles
- Nanotubes and nanofibres
- Nanostructured materials and applications
- Toxicology of nanomaterials and nanotechnologies

MODULE 3 [78H] : APPLICATIONS

- Micro-and nanofluids
- Analytical nanosystems
- Sensors and microsystems
- Nanophonics
- Organics electronics
- Lab course on microfabrication and clean room technology



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