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 SURFACANTS IN SOLUTION
- POLYMERS AND SURFACANTS 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 Polymer materials, Adhesives, Paints...

PRICE: 7 300€

APPLY ONLINE AT enschp.bordeaux-inp.fr
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ENSCBP - Bordeaux INP
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KEY FIGURES

5 engineering training courses (Master)
- Chemistry - Physics
- Food Science
- Materials Engineering
- Structural Analysis of Composite Materials
- Food Production

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

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

2629m² dedicated to technology transfer activities

75% graduate students
with international experience

10% international students

Involved in several international programs:
ERASMUS+, FITEC...

CONTACT

International Relations Office
+33 (0)5 40 00 66 94
international@enscbp.fr
ENSCBP.BORDEAUX-INP.FR
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, Areva, EADS, Renault, Snecma...

**MODULE 1** [78H] 
FROM MATERIALS SELECTION TO MATERIALS DESIGN
- MATERIALS (Engineering alloys, composite materials, functional materials)
- MATERIALS SELECTION (Material property charts, selection strategy, life-cycles of materials)
- MATERIALS BY DESIGN

**MODULE 2** - [66H] 
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** - [72H] 
MATERIALS PROCESSING
- FORMING PROCESSES
- SURFACE TREATMENT PROCESSES
- NUMERICAL SIMULATION OF PROCESSES

**CALENDAR**

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international@enscbp.fr
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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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