Who can apply?

Students who have earned at least a Bachelor degree (or licence) in science (Chemistry, Physics, Physical Chemistry, Chemical Engineering, Metallurgy, Material Sciences, Electrochemistry). Students in their final year of undergraduate (licence 3, bachelor) are welcome on the condition that they are graduated before they enrol.

Your application will include:

- The application file (download at www.u-picardie.fr/mundus_MESC)
- A detailed CV with academic records and transcripts
- Proof of score for TOEFL (or other English test).
- 2 letters of recommendation from qualified professors
- A written essay on energy-related topics

Where and when to send your application:

- A hard copy of your full application should be sent to MESC Administrative Coordination Office, usually by the end of January (see website for precise date which may change year by year)
- An electronic copy of your full application file should also be sent at mundus.mesc@u-picardie.fr AND christian.masquelier@u-picardie.fr

Admission criteria:

Applicants will be evaluated on the basis of their prior performance and professional promise, as evidenced by academic records and recommendation letters from individuals familiar with their capabilities. Besides usual evaluation of student’s records, applicants will have to explain their goals and interests in following a european master course.

As all the courses will be taught in English, students whose native language is not English must take the TOEFL/TOEIC examination prior to applying to the Master. A minimum level of 550 points is required.
What is MESC?

The European Master Course Materials for Energy Storage and Conversion (MESC) is designed to provide a 2 years (120 ECTS) education programme in materials science and electrochemistry within 7 universities in 5 countries: France (Marseille, Toulouse, Amiens), Poland (Warsaw), Spain (Cordoba), U.S.A. (Philadelphia) and China (Xiamen). These universities host world-renowned leading research laboratories in the field of Energy-Related Materials.

MESC has been granted in 2005 by the European Commission as a top-quality Erasmus Mundus Master programme which enhances the visibility and attractiveness of European Higher Education overseas.

For Third Country (Non European) and European students who join MESC it is also an opportunity to study in a multicultural environment since our students come from all over the world. That’s why classes are taught in English by professors and researchers who interact through the European Research Institute ALISTORE-ERI. We also provide upgrading in English to help everybody follow classes and local language courses in the visited countries. Therefore do not hesitate to give energy to your studies and to join MESC!

Degree awarded

After successful completion of the curriculum, students will graduate with a multiple Master degree in “Materials for Energy Storage and Conversion” awarded by the universities of the Consortium and recognised in each of the countries visited.

The MESC Curriculum

Semester 1 in France

Mandatory units taught in Toulouse and Marseille
- TU1 General electrochemistry
- TU2 Solid-state chemistry
- TU3 Physical chemistry of materials: bonds, defects...
- TU4 Language (English)

Optional units taught in Toulouse
- TU5 Application of surface treatment to the energy storage
- TU6 Energy storage and conversion 1

Optional units taught in Marseille
- TU7 Surface and interface analysis
- TU8 Materials science and modelling

Semester 2 in Poland

Mandatory units
- TU9 Polymer electrolytes
- TU10 Materials technology and fuel cells
- TU11 Energy storage and conversion 2
- TU12 Photovoltaics
- TU13 Language (English)

Semester 3 in France or Spain

Mandatory units taught in Amiens and Cordoba
- TU14 Structural investigation and characterization of materials
- TU15 Thermal, structural, morphological analysis of materials
- TU16 Materials at the nano scale
- TU17 Energy sources & storage: demands & applications
- TU18 Laboratory practice and bibliographic thesis

Optional units taught in Cordoba
- TU19 Modern techniques for the synthesis of nanomaterials
- TU20 Application of nanomaterials to energy storage & conversion

Optional units taught in Amiens
- TU21 Battery technology and benchmarking
- TU22 Materials for hydrogen storage

Semester 4: Master Thesis

Six months research training within laboratories of the European Research Institute ALISTORE-ERI or in Xiamen or Drexel Universities.
- TU23 Master Thesis oral defence and poster presentation

Job opportunities

MESC students are strongly linked to laboratories and partner companies members of ALISTORE-ERI, who offer them several topics for their 6 months research training (semester 4). It is a good way to put into practice what they learned during their 2 years master course and to find a position after graduation.

Finance your studies

Grants

Students joining MESC can receive a range of grants who will help them to finance the extra costs generated by mobility:

1) Erasmus Mundus grants:
   - For Third country students (Cat A): A 1,000 € monthly allowance during 24 months + 8,000 € for travel and accommodation expenses + 8,000 € for the participation costs to the MESC programme. The total amount of the Erasmus Mundus grant received by every Cat A student selected on the main list is 40,000 € for the 2 years.
   - For European students (Cat B): A 500 € monthly allowance during 24 months + 3,000 € for their travel and accommodation expenses + 2,000 € for the participation costs to the MESC programme. The total amount of the Erasmus Mundus grant received by every Cat B student selected on the main list is 17,000 € for the 2 years.

2) Private scholarships (ALISTORE-ERI, CIC...):
   For the students not selected on the main list for an EM scholarship but ranked among the first in the reserve list, there is a possibility to join the program with these grants:
   - For Third country students: 20,000 € for the 2 years.
   - For European students: 500 € / Sem. (8,000 € for the 2 years) and for European students they are 2,000 € / Sem. (2,000 € for the 2 years)

Participation costs

Tuition fees for Third countries students are 2,000 € / Sem. (2,000 € for the 2 years) and for European students they are 500 € / Sem. (2,000 € for the 2 years)