

# An Erasmus Mundus label for the international Master in Advanced Materials: Innovative Recycling

The Master in Advanced Materials: Innovative Recycling (AMIR) has been awarded an Erasmus Mundus label\*, thus recognizing the excellence and international outreach of the program. Thanks to this label, AMIR will be able to welcome and fund talented international students for the next four editions of the program.

## Origin of the program

The AMIR Master program was developed to answer a crucial problem that is facing all major developed economies of the modern world – **how do we transition to a green, circular economy that emits less CO2?**

One of the key challenges to answering this problem is the **vital need to develop advanced processes for the recycling and reusing of highly valuable finite raw materials**. The AMIR Master program brings together a **wide range of academic, industrial and research experts** with a curriculum that educates future international professionals, who will develop new innovative ways to recycle rare materials.

Established in 2016, in response to a call for proposals published by the **Knowledge and Information Community (KIC) on Raw Materials, of the European Institute for Innovation and Technology (EIT)**, the AMIR Master program began as a partnership between the Universities of Bordeaux (France), Liège (Belgium), TU Darmstadt (Germany) and the Technical University of Madrid (Spain). Since then, the University of Miskolc (Hungary) and NOVA University Lisbon (Portugal) have also joined. Following the successful funding application, the program selected its first intake of students in 2017, who began the program in September that year. In 2018, the program received EIT Raw Materials label and funding (renewed in 2021) and became one of 6 European Joint Master's programs of the "Raw Materials Academy".

## Overall description

In the past 3 years, around 30 students are recruited to the Master, and are distributed among the three "Year 1" partner universities: Bordeaux, NOVA Lisbon and Miskolc. After spending their first year at one of these universities, they then spend their second year at another, thus **obtaining a diploma from each university (double diploma)** upon completion of the program. It is hoped that the EIT Raw Materials label will enable AMIR to continue recruiting close to 30 students per year, while the EMJM label should bring in an additional 15-20 students per year, by offering this number of scholarships between 2022 and 2025.

During the first year, students learn about the general and technical aspects of the raw material value chain (chemistry, materials science, lifecycle of materials) as well as the more cross-sectoral learning outcomes of the EIT (sustainability, creativity, innovation, leadership and entrepreneurship).

In their second year, students then specialize in a study field of choice, followed by an **internship with a research organization, industrial partner or academic partner**. The AMIR Master program has several research and industrial partners, with whom students may complete their internships.

### Erasmus Mundus Joint Master (EMJM)

The Erasmus Mundus label and funding will lead to the development of a new, tailor-made study program, proposed by the same partner universities. This represents another major milestone in the development of the AMIR Master, and recognizes both the quality of the program and its relevance within not only higher education but also as regards broader societal challenges.

With the boost that the Erasmus Mundus label brings in terms of worldwide reputation and the scholarships on offer, AMIR will become even more attractive, resulting in a significant increase in the number of candidates each year. This will allow us to recruit some of the world's most talented students in the fields of Chemistry, Chemical Engineering and Materials Science.

*Guido Sonnemann — Professeur for Sustainable Chemistry, UBx*

An important factor in Master programs with the EMJM label is the level of "jointness" of the program. For AMIR, this has meant developing a new parallel study program, with new mobility tracks for all the EMJM students to choose from, which will include three online core modules to be delivered jointly by all three "Year 1" universities, as well as an extended summer school each year, bringing Year 1 and Year 2 students together, along with alumni of the Master.

Thanks to the EMJM label and funding of the AMIR Master, **scholarships may be offered for four intakes of students**, beginning with the 2022-2024 intake. These scholarships are reserved for a limited number of candidates following the written and oral evaluation of the selection process. In addition, EMJM scholarship holders do not pay the AMIR fees, and are provided with comprehensive insurance for the 2-year duration of the program.

### Erasmus Mundus

**Erasmus Mundus Joint Masters are high-level and integrated study programs, at Master level.** They are designed and delivered by an international partnership of higher education institutions. An EMJM involves at least three HEIs from three different countries, of which at least two must be EU Member States and third countries associated to the Program. Additionally, an EMJM study program may involve other educational and/or non-educational partners with specific expertise and interest in the area of study.

**By supporting these jointly recognized Master degrees, the EU aims at fostering excellence and internationalization of the participating institutions.** There are also scholarships for students to take part in these prestigious programs; the Masters themselves offer them to the best-ranked applicants worldwide. These individual scholarships of €1,400 per month (max. 24 months) cover all costs incurred by students'

participation in the Master program (accommodation, travel costs, subsistence costs, materials etc.).