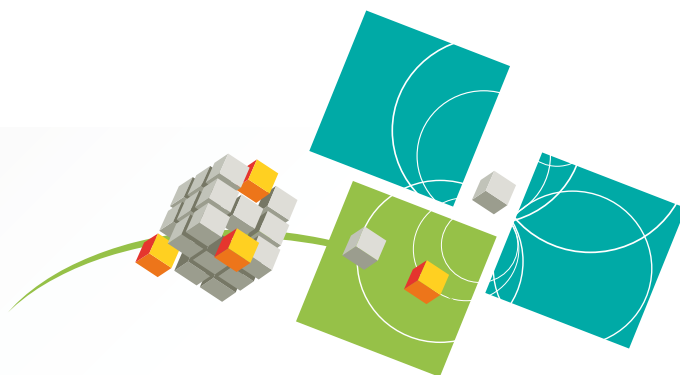




# International Master in **Advanced Materials for Innovation & Sustainability**



Grenoble INP  
Aalto University  
TU Darmstadt  
University of Bordeaux  
University of Liège



# Do you want to make a difference?



If you want to implement positive changes for

The environment,  
The way we use the Earth's resources,  
The wellbeing of society,  
Our lives and future,

Then... get involved and join AMIS Master's Program!

## AMIS a great opportunity to:

- Become part of a group of world renowned leading Universities with their associated research and industry partners
- Understand the full raw materials value chain and research how the Earth's resources can be recycled and used in a responsible way
- Get a mind-set for innovation & entrepreneurship focusing on sustainability of advanced materials involved in the technological revolution of this century
- Face new technologies, new learning methods and concepts to develop your skills and competences in management and market oriented solutions
- Study in an international environment, explore new countries and different cultures
- Discover an exciting environment designed to develop your creativity and foster your ideas
- Become a change agent able to research and develop new solutions for tomorrow's problems
- Implement your own ideas and become an entrepreneur. You will be connected to Grenoble INP's professional network, including industry core and associated partners who will support you to create your own company







# Focus of the program

AMIS is a Master's Program in Advanced Materials for Innovation and Sustainability, it tackles the theme '*Substitution of critical or toxic materials in products and for optimized performance*'. It also covers '*Material chain optimization for end-of-life products*' and '*Product and services design for the circular economy*' - all of which are central themes of EIT Raw Materials.

The primary focus of the adaptation is on metal and mineral raw materials. Bio-base and polymer materials are covered in view of their substitution potential and other materials in the context of multi-material product recycling.

In addition, the AMIS Master Program includes a solid package of courses and project work in innovation and entrepreneurship.



# The AMIS Master Program

Mobility is an integrated part of the two-year Master Program, during which you will study at two of the consortium partner universities. Upon completion of the program, successful students will validate

120 ECTS and will graduate a double-diploma delivered by two of the five partner institutions where they will have studied.

## BREADTH OF KNOWLEDGE

### sustainability

#### EIT Overarching Learning Outcomes 30ECTS

*Highly integrated, innovative education*

- Inno-Project I and II
- Joint summer camp
- Inno-Mission Internship
- E-learning

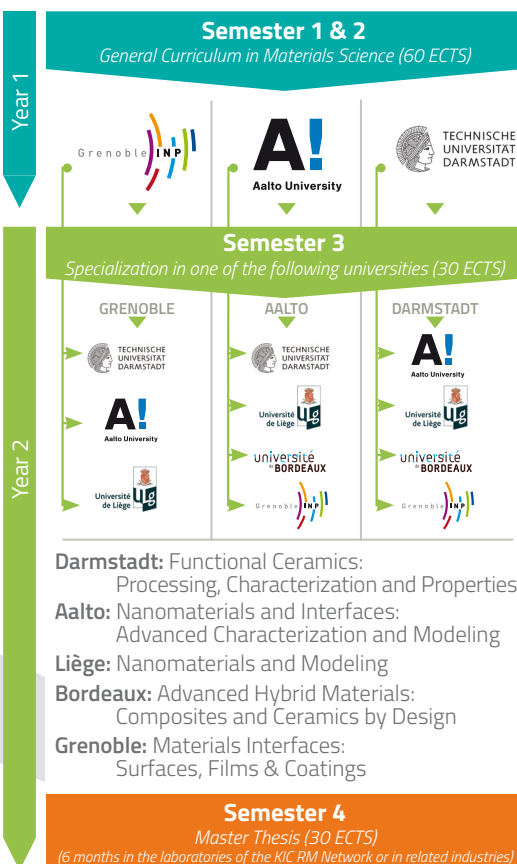
Breakthrough  
Innovation

### business

*Robust entrepreneurship education*

- Management
- Entrepreneurship
- Integrated courses
- Market analysis

DEPT OF KNOWLEDGE





# Courses

The language of instruction is English.

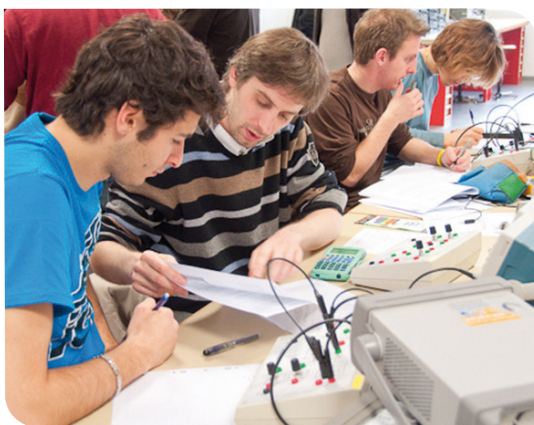
Year 1

## Basic level of competences Mandatory courses in:

- Advanced functional materials
- Innovation, business and entrepreneurship

## Joint collaboration courses with AMIS partners:

- **Inno project I:** development of business models from the commercialization process of new technologies
- **Summer camp:** a week intensive course working in teams on industry case studies to create and produce new ideas, innovative technologies, improved products or services
- **Internship:** work experience in a company or research organization to develop of a solution focused approach in translating the innovations into feasible business solutions and the commercialization of new technologies



Year 2

## Specialization year Mandatory courses in:

- Advanced functional materials with a specialization in Material interfaces, Nanomaterials, Ceramics or Hybrids

## Joint collaboration course with AMIS partners:

- **Practical work** on various industrial projects integrated with innovation and entrepreneurship contents
- **Inno project II:** a specialized approach on the development of business models from the commercialization process of new technologies

## Master thesis:

- A research and development experience in material science jointly supervised by the home university professors and the host partners. The results of your master thesis will be evidenced during a presentation, if your proposed concepts are deemed suitable, you can expect in setting up a business or spin-off





## T-shaped professionals

AMIS covers all the areas of the knowledge triangle by providing students with scientific knowledge - the overarching knowledge - and skills and competencies built of entrepreneurship and innovation acquired through modern teaching methods.

Through the program, you will become an expert in the field of raw materials, particularly in sustainable functional materials and alongside you will get a holistic view on value and process chain.

## Solid entrepreneurial skills training

AMIS will boost you to become change agents with an entrepreneurship mindset able to safeguard the sustainability of EIT Raw Materials throughout the industrial and research landscape.

Through the program, you will benefit from a robust entrepreneurship education and you will have the opportunity to meet with relevant academic contacts in the innovation and entrepreneurship ecosystem as well as non-academic partners (industries, RTOs, entrepreneurs) who will also support your future career building. The objective is to share best practices which will enable you to learn from their methods and mistakes.

You will gain transferable skills such as entrepreneurship, negotiation techniques, intellectual property, problem solving, working cooperatively and creatively, co-design and life cycle approaches which will enable you to consolidate your professional career.





## Your professional future

The program will prepare you to explore the angles for technological, social changes and where the niches for new business ideas are in the market. Contacts with industries and research institutes will prepare you to develop your own activities and develop your own business, join the industry or start a PhD focused on EIT Raw Materials challenges.

As a resource engineer, you could consider a career in the following fields:

### **Freelancer and entrepreneur**

- Create your own business or become a consultant

### **Resource industry**

- SMEs in chemistry, exploration, green energy, machinery and plant construction, metal working industry, ceramics, environmental economy (R&D, product development, management, production, marketing and sales)

### **Research**

- At universities, research institutions, teaching students or managerial position

### **Circular economy**

- Production, analytics, management, marketing and sales

### **Wider society**

- Science journalism, consulting, project development and management, advisor to policy makers, administration, specialist agencies, media, professional working



# About AMIS partners

## Academic partners



### ■ Grenoble INP, France

Grenoble Institute of Technology is one of Europe's leading technology universities, at the heart of innovation for more than a century. Its mission is to empower new generations of engineers to respond to global challenges in the fields of energy, the digital world, micro and nanotechnologies, the environment, as a way to support continuous technological advances and economic growth. Grenoble INP is ranked among the best engineering schools in France.



### ■ Technische Universität Darmstadt, Germany

TU Darmstadt is one of Germany's leading technical universities. The disciplines represented are all focused on technology, as viewed from the vantage point of engineering, natural sciences, humanities and social sciences. Research is centered in the fields of energy, mobility, communications, information technologies and living conditions. In renowned rankings it has consistently corroborated its leadership in research, academic excellence, and its qualification of graduates for top jobs and successful careers.



### ■ Aalto University, Finland

Aalto University is a community where science and art meet technology and business with the aim to foster multi-disciplinary education and research. The university offers a wide range of programs in technology, engineering, business, art and design, and places among top 15 in the world in company collaboration. Located in the Helsinki metropolitan area, it is Finland's second largest university. Aalto Entrepreneurship Society is Europe's largest student run entrepreneurship community.



### ■ University of Bordeaux, France

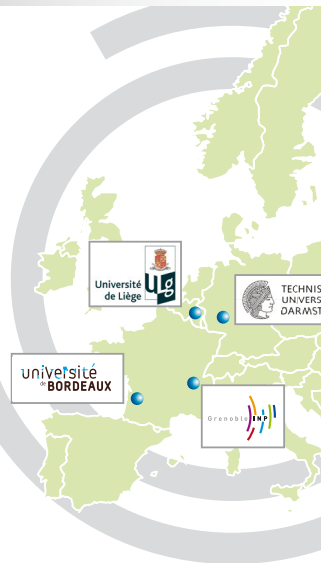
The University of Bordeaux is a multi-disciplinary, research-focused international institution, renowned for the quality of its academic courses. It is the third largest university in France, and a top ten university in France (top five in Chemistry), according to ARWU. In 2016, it became the first institution to be awarded a perennial Label of Excellence by the French government, to recognize the excellence of its competencies in all scientific fields.



### ■ University of Liège, Belgium

The University of Liège is the only public, pluralist and complete university institution of the French-speaking Walloon-Brussels community. Highly ranked, it is part of the Wallonia-Europe University Academy. Through a large range of courses, it encourages the integration of new types of teaching and the acquisition of combined skills. Research is focused of a wide variety of subjects from basic to applied research. Special attention is paid to fundamental research.

Advanced  
Materials for  
Innovation &  
Sustainability



# About AMIS partners

## Non-Academic partners



### ■ ARKEMA

Arkema is a designer of materials and innovative solutions. The company is specialized in shaping materials and creating new uses that accelerate customer performance in lightweight and design materials, biosourced materials, new energies, water management, solutions for electronics and home insulation. A specialty chemicals global major, with 3 business segments – High Performance Materials, Industrial Specialties, and Coating Solutions – and globally recognized brands, the Group operates in close to 50 countries.



### ■ Commissariat à l'Energie Atomique et aux Energies Renouvelables (CEA)

The CEA is a French government-funded research organization and a key player in development and innovation in the areas of defense and security, low carbon energy, information and health technologies. It maintains a cross-disciplinary culture of engineers and researchers, building on the synergies between fundamental and technological research to promote innovation in industry. The CEA is actively involved in the European Research Area and its international presence is constantly growing.



### ■ ArcelorMittal

ArcelorMittal is the world's leading steel and mining company. Guided by a philosophy to produce safe, sustainable steel, it is the leading supplier of quality steel products in all major markets (automotive, construction, household appliances and packaging), with leading research and development, technology, sizeable captive supplies of raw materials, and outstanding distribution networks. With 12 major research centres worldwide, ArcelorMittal is at the forefront of steel production research and development.



### ■ Fraunhofer Gesellschaft

Fraunhofer is Europe's largest application-oriented research organization. Research focuses on people's needs: health, security, communication, energy and the environment. As a result, the work undertaken by researchers and developers has a significant impact on people's lives. Fraunhofer develops new technologies, innovative products and techniques that benefit society and aims at strengthening the economy. It conducts research in fields relating to social challenges in order to achieve tangible improvements for mankind.

### ■ imec

IMEC is an internationally renowned research institute that performs world-leading research in different fields of nanoelectronics. It combines a leadership in microchip technology with in-depth expertise in software and ICT to lay the foundation of a more personalized healthcare, smarter cities, cleaner energy and more efficient mobility, logistics and manufacturing solutions. IMEC is committed to numerous research projects co-funded by the government, contributing strongly in Flemish and European R&D programs.



# Students'success

AMIS will educate you with a state of the art training in functional advanced materials and reinforce your chances of success as professionals, innovators and entrepreneurs.

## A strong market need

Europe is amongst the world leaders in Materials Science. Statistics clearly point out that there is a strong need for highly trained engineers and researchers to work in this field.

Advanced Materials are considered by the European Member States as one of the 6 Key Enabling Technologies which will play an increasingly important role in developing the required industrial and technological base indispensable for the delivery of smart, sustainable and inclusive European growth. The estimated market potential of Advanced Materials grew from 100bn to 150bn in the past 10 years and is expected to grow even further.





# Participation fees and admissions requirements

## Participation fees:

**For European students:** 1000 euros/year

**For non-EU students:** 8000 euros/year

These fees include institutional tuitions fees, insurance and participation in teaching activities of the program (lab courses, MSc research project etc.)

**Scholarships: scholarships and fees waivers are awarded to the best candidates.**

**Mobility grants are available for all students.**

## Application requirements:

Successful applicants should hold a Bachelor's degree in Science or Technology or Engineering (Physics, Chemistry, Materials Science) or its equivalent.

Applicants in their final year of undergraduate education may be admitted on the condition that their bachelor degree will be awarded before they enroll respecting the university specific deadlines.

Applicants will be evaluated on the basis of their prior study performance and professional promise, as evidenced by their academic records (study success and suitability of acquired bachelor degree for the program), letters of recommendation and other relevant documents.

As all the courses will be taught in English, applicants must hold one of the following language tests:

- IELTS (Academic IELTS only)
- TOEFL (IBT = Internet Based Test, PBT = Paper Based Test)
- CAE/CPE (Cambridge Certificate)
- Pearson Test of English (PTE Academic only)

## Language test exemptions and required documents:

<http://amis-master.eitrawmaterials.eu/>

## Application timeframes:

- **1<sup>st</sup> round:** December to February
- **2<sup>nd</sup> round:** March to May

## Selections:

Academic selections will be granted on the admission requirements and an evaluation of the AMIS Master's Management Board. During the application process, it is the responsibility of the candidate to show that they meet the requirement.

Successful candidates will receive a letter or admission in the name of the AMIS consortium. Detailed information on the procedure and the application form will be available then.

## Apply online through our application portal:

[www.amis-master.eitrawmaterials.eu](http://www.amis-master.eitrawmaterials.eu)

## Further information:

[contact@amis-master.eu](mailto:contact@amis-master.eu)





Advanced Materials for Innovation and Sustainability

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