

# EUROPEAN JOINT MASTERS IN MANAGEMENT AND ENGINEERING OF ENVIRONMENT AND ENERGY



## AN ERASMUS MUNDUS MASTER COURSE



Co-funded by the  
Erasmus+ Programme  
of the European Union

The ME3 programme received the financial support from the European Commission (EACEA) within the Erasmus Mundus programme for its editions from 2007-2009 until 2011-2013 and from the edition 2013-2015 until 2017-2019.

## TWO AWARDED DEGREES

All our students are graduate from UPM (ME3 European Joint Masters in Management and Engineering of Environment and Energy). The second degree depends on the study track:

- Track A: Master of Science with a major in Mechanical Engineering (KTH)
- Track B: Master in Mechanical Engineering Modelling (BME)
- Track C: Master of Science Process and Bioprocess Engineering in Project Management for Environmental and Energy Engineering (IMT Atlantique)

In addition, a joint certificate (Joint certificate of the ME3 International Master programme “European Joint Masters in Management and Engineering of Environment and Energy”) is issued to each student.

## KEYWORDS

Circular Economy, Eco-technologies, Energy Efficiency, Energy Engineering, Energy Systems, Environment, Environmental Process Engineering, Project Management, Renewables, Resource Management, Sustainability.

## INSTITUTIONS OFFERING THE MASTER

- IMT Atlantique: a leading French Higher Education and Research Institution in Engineering. IMT Atlantique (Nantes Campus) is part of the Institut Mines-Telecom.
- Budapest University of Technology and Economics (BME): the top higher education institution of Hungary, with a well-established international reputation.
- The Royal Institute of Technology (KTH): the largest, oldest and most International Technical University in Sweden.
- The Technical University of Madrid (UPM): the oldest and the largest Technical University in Spain.

## INDUSTRIAL AND RESEARCH COLLABORATIONS

Some examples of hosting institutions for master's thesis are:

- Alstom, Arcelor Mittal, Technip, Veolia, Séché Environnement, Volvo, Total, Schneider Electric, EDF, General Electrics...
- Indar Energy, IRIDRA, Zoetic Energy, MicroEnergy International, Endrava, S3D, Meteolien...
- United Nations, Aalto University, University of California, IRENA, Fraunhofer Institute, IKEM, IWMI, Tecnalia R&I...

## LANGUAGE OF TEACHING

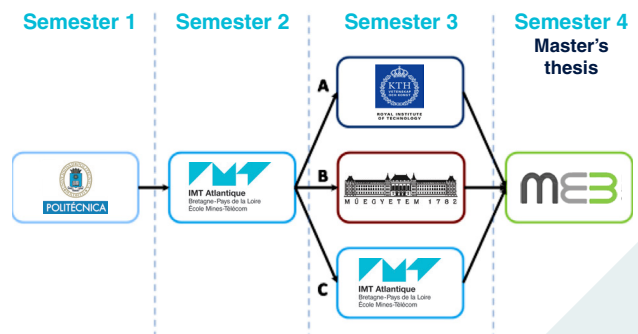
100% English

## CONTEXT

Nowadays, environmental protection and sustainability within the chemical processing and energy industries are of major concerns. In a near future, experts predict that the energy demand will drastically increase, especially because of the spectacular industrial and economic growth of the emerging countries. In such a context, meeting the energy needs of society without serious adverse impacts on humanity and the environment is a world challenge. Whilst generating energy with minimal environmental impact falls within the broad scope of engineering, managing the demand for energy is in the realm of economics and social sciences. In most cases, these issues are interrelated and global solutions and strategies have to be found. The ME3 Masters is thus addressed to engineers and managers, who will work in Europe or in other regions of the world, to monitor complex social-technical systems related to Environment and Energy.

## PROGRAMME AND STUDY TRACKS

The 2-year programme (120 ECTS) allows students to study in up to three different European Countries.



## YEAR 1: COMMON-CORE MODULES FOR ALL STUDENTS

### Management Foundations For Industry 4.0 - 30 ECTS (UPM)

Statistics and Data Analytics: From Big Data to Good Decisions, Strategic Analysis of Business Decisions, Complexity and Networks: Business in an Interconnected World, Financial and Managerial Accounting, Capital Markets and Corporate Finance, Industrial & International Marketing. Optional Courses: Quantitative Methods for industrial Organization Decisions, Technology, Organization and New Digital Business Models, Innovation and Strategic Management in a Global Context, General Management Skills, SME Management

### Eco-technologies and Environmental Process Engineering - 30 ECTS (IMT Atlantique, Nantes Campus)

Environmental Process Engineering, Incineration and Waste Minimization, Air and Soil Remediation, Water Treatment Processes, Strategies and Innovation, Process Modelling, Simulation and Control, Environmental Management, Team projects, Languages

## YEAR 2: THREE POSSIBLE STUDY TRACKS + 6-MONTH MASTER'S THESIS (30 ECTS) IN A PROFESSIONAL CONTEXT (INDUSTRY, CONSULTANCY FIRM, R&D, NGO...).

### Study track A - Sustainable Energy Engineering - 30 ECTS (KTH)

Sustainable Power Generation, Sustainable Energy Utilisation, Renewable Energy Technologies, Theory and Methodology of Science for Energy Research

### Study track B - Engineering & Modelling of Energy Technologies - 30 ECTS (BME)

Combustion Technology, Energy Conversion Processes and its Equipment, Simulation of Energy Engineering Systems, Steam and Gas Turbines, Project in Thermal Engineering, Measurement in Thermal Engineering, Energy Economy

### Study track C - Energy Systems and Services for Efficiency - 30 ECTS (IMT Atlantique, Nantes Campus)

Thermodynamics for Energy Systems, Renewable, Energy Systems and Energy Networks, Energy Efficiency and Services, Energy Modelling and Optimization, Energy Management, Team Project, Languages

## ADMISSION REQUIREMENTS

A Bachelor's degree in Science or Engineering or a recognised equivalent diploma from an accredited institution (minimum 3 years full time study) in a scientific or technical discipline. Preferred first degree fields are Mechanical Engineering, Chemical Engineering, Civil Engineering, Environmental Engineering, Process Engineering and similar subjects closely related to the objectives of the course.

## ENGLISH LANGUAGE REQUIREMENTS

Mother tongue or  
Bachelor degree taught in English or  
English test such as TOEFL IBT 80, IELTS 6.5, TOEIC 605, Cambridge

## APPLYING

Applications are open from mid October each year. For the application deadline please refer to the ME3 website  
<http://web.imt-atlantique.fr/ME3>

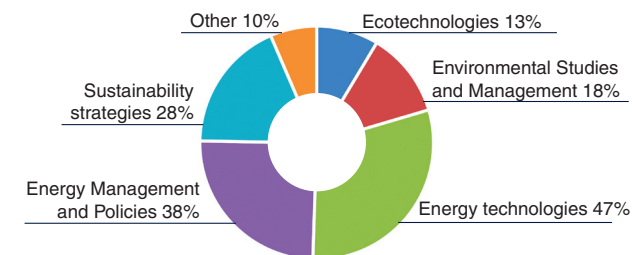
## SKILLS ACQUIRED

- A solid culture of the Environmental Energy sectors: international policies, technologies, completed with good skills in process modelling and design
- A capacity to understand and analyse the social, economic, industrial stakes in the environmental and energy domains and their interactions, at an international scale.
- A capability to propose and set up global industrial solutions in order to match the technical, financial, social, economic and legislative constraints
- A capacity to orient strategies in the Environment and Energy sectors, with a perspective of sustainability
- An aptitude to work and communicate in international settings, with colleagues from different cultures, taking into account the local features

## TYPICAL JOBS

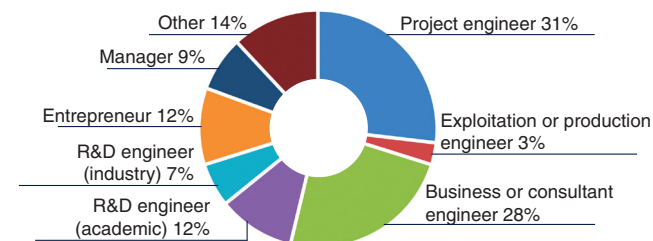
Source: ME3 Alumni Survey, 2016.

### Activity Sectors



Other: Consultancy, Oil&Gaz, EHS, Agribusiness, Sustainable supply chain, Standardization.

### Positions



Other: Sales Manager, PhD candidate, Postdoctoral researcher,...

## PARTICIPATION COSTS

- 9 000 €/year for non-EU students
  - 8 000 €/year for EU students
  - 6 000 €/year for EU students coming from core partners institutions (BME, KTH, UPM and IMT Atlantique)
- Possibility of tuition waivers at IMT Atlantique and KTH

## CALENDAR

The academic year starts the following September (usually mid-September) in Madrid.

## ME3 CONTACT

e-mail: [me3@imt-atlantique.fr](mailto:me3@imt-atlantique.fr)  
<http://web.imt-atlantique.fr/ME3>