

## Admission

Students interested in the ECMI master programme must apply to the "Laurea magistrale in Matematica – Curriculum C", paying the usual tuition fees required by Università degli Studi di Milano. No additional tuition fees are required for the period of mobility, which may be supported by the LLP-Erasmus Programme.

Applications open every year in July. A specific link and information will be posted on the ECMI programme web pages.

Applicants meeting all the academic requirements will be invited to an interview. On-site interviews will be held on September every year.

Applicants to the double degree programmes will receive a notification of acceptance also from the partner university by December. Candidates to the double degrees must provide a TOEFL or IELTS English certificate before starting the mobility to the host institution.

Please visit ECMI Master website for detailed instructions about admission:

<http://users.unimi.it/erasmusmat/ecmi>

## Programme coordinator:

**Prof. Alessandra Micheletti**  
Department of Mathematics  
Via Saldini 50 – 20133 Milan  
tel. +39 02 503 16120

**email:** [ecmi@unimi.it](mailto:ecmi@unimi.it)

## ECMI Educational Centers

University of Kaiserslautern (D)  
Technical University of Dresden (D)  
Johannes Kepler University Linz (A)  
**Università degli Studi di Milano (I)**  
Technical University of Eindhoven (NL)  
Technical University of Denmark (DK)  
University of Oxford (UK)  
University of Strathclyde (UK)  
Lappeenranta University of Technology(SF)  
Chalmers University of Technology (S)  
Lund University(S)  
The Norwegian University of Science and Technology (N)  
Wroclaw University of Technology (PL)  
The Autonomous University of Barcelona (E)  
Carlos III University of Madrid (E)|  
University of Novi Sad (SRB)  
Technical University of Graz (A)  
University Joseph Fourier of Grenoble(F)  
Institut National des Sciences Appliquées de Rouen (F)  
Ecole des Mines de Paris(F)

## ECMI web site

<http://www.ecmi-indmath.org/>



UNIVERSITÀ DEGLI STUDI DI MILANO

TWO-YEAR MASTER'S PROGRAM

in

**INDUSTRIAL  
MATHEMATICS**

<http://users.unimi.it/erasmusmat/ecmi>



## Overview

The two-year ECMI master's degree in Industrial Mathematics at Università degli Studi di Milano (UNIMI) originated from the Educational Programme established by the universities of the European Consortium for Mathematics in Industry (ECMI), of which University of Milan is a long term member.

The purpose of the Industrial Mathematics programme is threefold:

- To promote the use of mathematical models in industry.
- To educate industrial mathematicians to meet the growing demand for such experts.
- To operate on a European scale.

The ECMI Consortium issues a Certificate in Industrial Mathematics, a "quality statement" recognised by all the universities of the Consortium, to the students following the programme, with two different branches: Technomathematics or Economathematics.

Further requirements to obtain the certificate are:

- have participated to an international Modelling Week, organized every year by ECMI;
- have spent at least one semester at one of the universities of the ECMI Consortium, to follow courses or to prepare the final thesis;
- have prepared a final Thesis in Industrial Mathematics, in collaboration with companies or research centres, written in English.

Also **two double degree programmes** are running at in this framework:

*Double degree in Ecomathematics (Mathematics for Ecology, Environment, Energy management):* UNIMI – LUT (Technical University of Lappeenranta – Finland)

*Double degree in Mathematical methods for Physics and Medical Imaging:* UNIMI –UC3M (University Carlos III of Madrid, Spain)

See the web pages of the master for further details.

## The 2011-2012 programme

FALL SEMESTER COURSES	CREDITS
Real Analysis <sup>E T</sup>	9
Mathematical Finance 1 <sup>E</sup>	9
Mathematical Finance 2 <sup>E</sup>	6
Numerical Methods for PDE's 1 <sup>T</sup>	9
Optimization <sup>E</sup>	6
Complements of Operation Research <sup>E</sup>	6
Mathematical Statistics <sup>E</sup>	9

SPRING SEMESTER COURSES	CREDITS
Operation Research <sup>E</sup>	6
Stochastic Calculus and applications <sup>E</sup>	9
Numerical signal analysis <sup>T</sup>	6
Partial Differential Equations	6
Elements of functional analysis	6
Numerical Methods for PDE's 2	9

Courses marked with **E** are mandatory for Economathematics, those marked with **T** are mandatory for Technomathematics. A specific programme will be included in the *student study plan*. However, to complete their 120 credits students will have to obtain a

minimum number of credits in specified kinds of courses, for example:

- ▲ at least 29 credits of core and advanced courses from Numerical Analysis, Statistics or Stochastic Processes, Optimization, Mathematical Analysis, Mathematical Physics.
- ▲ At least 18 credits in modelling activities chosen between the following list

MODELLING ACTIVITIES	CREDITS
ECMI Summer School	2
ECMI Modelling Week (mandatory)	3
Seminar	1
Laboratory of Mathematical Modelling	6
Industrial Internship	6
Complements of Operation Research E	6

The ECMI universities offer a compatible basic preparation in the first year (level 1), which then leads to a complementary offer for the more specialized courses in the second year (level 2). Overall the specialized courses cover a very wide spectrum of subjects.

## Entry requirements

The ideal candidate of the **ECMI Master in Industrial Mathematics** must possess an academic degree from a program in mathematics or applied mathematics lasting a minimum of three years (Bachelor). Also students with a bachelor in Physics, Computer Science, Engineering with a strong mathematical background can be admitted. A thorough proficiency in English is required. In fact, every student of the ECMI master will be offered the possibility to follow his entire curriculum in English. For each student a program will be tailored individually, but every student will have to go through at least another European hosting institution, preferably of the ECMI Consortium.