

Master of Science in
ENGINEERING OF COMPUTING SYSTEMS

September 2013

Course history

- Politecnico di Milano is 150 years old
- One the most ancient technical (engineering) universities in the world
- Among the best 30 technical universities in the world in common rankings
- The English curriculum of Laurea Magistrale (Master of Science) degree started in 2005

“Important” People

- **Giovanni Lozza**, Dean of the School of Industrial and Information Engineering
- **Angelo Morzenti**, Presidente (chair) of Computing Engineering M.o.S.
- **Milena Dacrema**, **Elena Leonardi**, manager of the course
- **Mauro Negri**, chair of the “Piano di Studi” commission
- **Gianluca Palermo**, head of the tutoring activity
- **Many tutors...**

Tutoring service

- Tutoring available to help you in practical matters (such as selecting your study plan)
- Web site: <http://ecs.ws.dei.polimi.it/index.html>
- Plenty of information on tutoring, study plans, web poliself, etc.

General organization

- 120 EATCS credits in two years.
- Two semesters per year (October-January, March-June)
- 100 credits in courses, 20 credits with a Thesis, to be discussed after completing all courses.
- Attending courses is not mandatory, but strongly suggested
- No minimum requirements on credits/average per year (but if you have a grant---), but graduation at most in four to six years.

Bureacratic stuff...

- Each year you have to choose the courses and then insert this choice (*piano degli studi*): **TUTORS ARE READY TO HELP YOU**
- Examinations are in fixed dates per each course (e.g., 2 in February, 2 in June-July, 1 in Sept.).
- “*Iscrizione*” via a web application (Webpoliself) is *mandatory at least a week in advance* (you will not allowed to take the exam otherwise): **TUTORS ARE READY TO HELP YOU**
- ...contact tutors first!

Organization of the studies

Study Plan

- A few mandatory courses if you satisfy some prerequisites
- Most courses and curricula are taught in English

Typical Study plan

- Year 1
 - Foundations of Operations Research
 - Formal Languages and Compilers
 - Databases 2
 - Software engineering 2
 - Enterprise Digital Infrastructure and Computer Security (10 credits)
 - High performance processors and systems
 - **+25 credits of free choice**

Typical study plan

- Year 2:
 - 40 credits of free choice
 - 20 credits for Master Thesis
- Global Requirements, e.g.:
 - At least 55 cfu from TABA, 5 from TABB
 - At least 15 cfu not in Computer Science (of which, at least 10 cfu from TABINT1)
 - At most one doctoral-level course (TABDOT)
- These are just examples: see the “regolamento didattico” for the “real” constraints

Courses in English

- TABA: Methodological courses. In English:
 - .089202 Technologies for Information Systems
 - .089218 Artificial Intelligence and Soft Computing (10CFU)
 - .088882 Formal methods for concurrent and real time systems
 - .088882 Theoretical Computer Science
 - .089182 Formal Languages and Compilers
 - .089183 Databases 2
 - .089184 Software Engineering 2
 - .088882 Enterprise digital infrastructure and Computer security (10 cfu)
 - .088882 High performance processors and Systems
- TABB: Application-oriented courses: all in English
- TABDOT (Doctoral-level courses): all in English
- Most courses in TABAUT, TABTEL are in English

Possible changes

- You can take II year courses during the first year.
- Pay Attention to prerequisites. Examples:
 - for Softw.Eng 2 you need Logic and algebra
 - for Formal Languages and Compilers you need a previous course in Theoretical Computer Science

Eight Application-Oriented tracks

- Built by combining various courses
 - Interactive applications
 - Bioinformatics and e-Health
 - ICT for industrial applications
 - Networked enterprise and services
 - Artificial intelligence
 - Robotics and artificial vision
 - Pervasive systems
 - Internet Engineering

Individual Study Plan

Assessing your past career

Tailoring you admission

- In your past curriculum:
 - you may not have taken courses that we consider prerequisites: you have to take them now,
 - or you may have taken courses very close to those offered here: you cannot take them again
- Need to assess your past career!

Undergraduate Prerequisites

- Mathematics:
 - Calculus, Linear and Abstract Algebra, Geometry, Mathematical Logic
- Computer Science:
 - Databases, Software Engineering, Basics of Computer Architecture and Operating Systems, C and Java programming, Network programming, Theoretical Computer Science
- Fundamentals of Telecommunications, Electronics, Automation

Missing prerequisites

- If you miss some prerequisite, you have been assigned one or more courses.
 - they are mandatory! Else no graduation!
 - they contribute to the 120 credits count and to the final average
- Prerequisites are being assessed by a commission.
- In some exceptional cases (concerning very basic disciplines) only Italian courses are available as prerequisites

Typical 5 credit prerequisites

- Logic and Algebra and Mathematical Logic
 - English course. *Priority for Software Engineering 2*
- Theoretical Computer Science
 - English course, II semester, *Priority for Formal languages and compilers, Formal Methods for Concurrent and Real Time Systems*
- Fondamenti di automatica (in Italian, some material in English) 1st semester

“Forbidden” courses

- If in your past curriculum you have already taken courses close to those offered here, they will be “forbidden” (“Divieto”). Examples:
 1. If you have already taken Numerical Analysis but not Mathematical logic, it will be forbidden to choose Num. Analysis and you will have to take Logic and Algebra.
 2. If you have already taken Formal Languages and Compilers, it will be forbidden. You will be left with one less mandatory course (free choice).

Other opportunities

International Agreements

International Agreements

- Joint Masters with:
 - University of Illinois at Chicago
- Erasmus
- And many double degrees...
- Typical stays of one or two semesters in one of these institutions during the second year.
- These agreements are open to foreign students (but pay attention to maximum length, visa, scholarships, etc.)