European Master's Program in Computational Logic

Objectives

Logic is everywhere: in reasoning and acting, in human and artificial agents, in mathematics and natural sciences, in engineering sciences, in humanities and social sciences, in law, you name it.

The field of Computational Logic covers all kinds of applications of logic.
Based on a solid background in mathematical logic and its subareas (as normally taught in computer science and artificial intelligence courses) a student of the European Master's Program in Computational Logic will learn the scientific aspects of Computational Logic appropriate for both (professional / industrial) applications and research in science and engineering.

Some typical questions addressed in the study program are: How does a deductive system operate? What kind of logic-based grammar can be used to process natural language? How can techniques for the verification of software and hardware be applied in industry? What formal methods are required for computer integrated manufacturing? What problems occur in such applications?

Five Universities

Five leading European universities have teamed up and developed an integrated and distributed European Master's Program in Computational Logic:

▶ Free University of Bozen-Bolzano, Italy

▶ Technische Universität Dresden, Germany

▶ Universidade Nova de Lisboa, Portugal

▶ Universidad Politécnica de Madrid, Spain

▶ Technische Universität Wien, Austria

Support

The program is supported - among others - by:

· Erasmus Mundus (EU)
· European Association of Logic, Language and Information (FOLLI)
· European Committee for Artificial Intelligence (ECCAI)
· European Network of Excellence for Computational Logic (CoLogNET)
· German Academic Exchange Service (DAAD)
· Italian Association for Artificial Intelligence
· Italian Association for Informatics (AICA)
· Italian Association for Logic and its Applications (AILA)
· Portuguese Association for Artificial Intelligence (APPIA)

Study Requirements

Applicants must satisfy the following study requirements:

· Bachelor in Computer Science or equivalent degree.

· Knowledge of English: TOEFL (>550/213) or IELTS (>6.0) certificates, or equivalent.

· Good knowledge in the areas:
  - Foundations of Logic
  - Foundations of Artificial Intelligence
  - Declarative Programming.

Course Units and ECTS credits
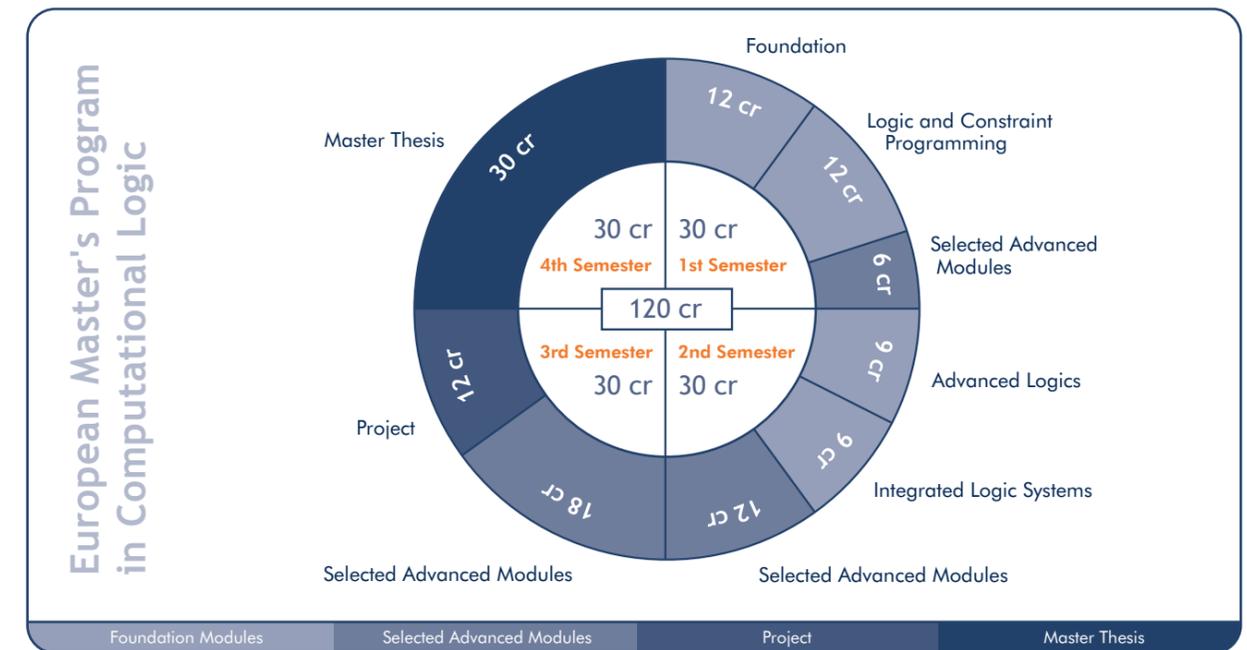
Course Structure

The course consists of

· common and compulsory foundation modules comprising 42 ECTS credits (cr), which are taught at each partner institution

· specific advanced modules comprising up to 36 ECTS credits, which are based on specific strengths of partner institutions in research

· a project of 12 or 24 ECTS credits

· and a master thesis of 30 ECTS credits

for a total of 120 ECTS credits.

Modules are distributed over three semesters, and the thesis takes place in the fourth.
The foundation modules are offered in the first year by all partner institutions with the aim of bringing the students to an equivalent level of skills and knowledge.

Bridging Courses integrated into the foundation modules of the first semester help students adapt to a masters course of European level. On the other hand, students may be awarded module equivalences according to their prior studies and accomplishments. The students' specialisation (advanced modules, project, and master thesis) can be pursued in the same or another partner institution.
In the master thesis the candidate should demonstrate the capability to solve independently a problem in Computational Logic or its applications using scientific methods.
Students may obtain a double degree by selecting two universities and acquiring in each about 50% of the overall 120 ECTS credits.

Scholarships

Scholarships are available from different sources. Various conditions and restrictions may apply.