

## TCCM

### Euromaster on Theoretical Chemistry and Computational Modelling

**Duration:** 2 years

**Course description:**

Several Institutions from six EU countries launched in 2006 an International Master in Theoretical Chemistry and Computational Modelling, with two main objectives:

- to provide students with a sound background in this area
- to promote student mobility within a large network of research laboratories.

This Master was awarded the Eurolabel by the ECTNA in 2007. At the end of the Master the students will be prepared to apply and develop new methods and computational codes, and to follow future doctoral studies in Chemistry, Physics, Life Sciences or Materials Science. They will be also able to develop professional activities as experts in molecular design in the pharmaceutical, petrochemical and new-materials industry, or in any company as computational experts.

The student has to complete 120 ECTS credits in two years. In the first year (M1), 30 ECTS credits correspond to compulsory subjects in Mathematics, Statistical and Molecular Quantum Mechanics; Programming and Numerical Methods; Group Theory; Basic Reaction Dynamics; and Basic Spectroscopy, delivered at the local (national) level. This teaching will be offered in the official language of the home Institution (Dutch, French, Italian, Portuguese, Spanish) except for the Netherlands, where the teaching is offered in English. 25 ECTS credits of M1 correspond to free options in Advanced Chemistry and 5 ECTS to the study of a European language. The second year (M2) includes an International Intensive Course (24 ECTS) organized each year in a different country. The teaching (in English) will be focused on advanced Theoretical Chemistry and Computational Modelling (Advanced Electronic Structure and Condensed Matter Theory; Molecular and Chemical Dynamics; Advanced Computational Techniques; and Computer Modelling and Simulation) as well as on their applications in Nanoscience; Biological systems; Materials by design; Reactivity and Catalysis; Excited States; Atmosphere and Space. The second part of M2 is a Research Project (36 ECTS). A minimum of 24 ECTS out of these 36 ECTS together with the Intensive Course will correspond to student's mobility. The Master offers the possibility of carrying out this research activity in any of the research groups included in the consortium of 47 European Institutions which launched the Master in 2006. A Master Thesis must be defended at the end of the Master in the home Institution. The student will be entitled to a Master degree delivered by his home Institution and recognized by all the others in the Consortium.

Access requirements: Bachelor in Chemistry, Physics or Materials Science. Other scientific bachelors can be accepted, provided the student takes complementary courses under the supervision of his local Tutor.

**Website:** <http://www.emtccm.org>

**Partners:**

AUTONOMOUS UNIVERSITY OF MADRID, Spain (Co-ordinating institution)  
UNIVERSITY OF VALENCIA, Spain  
UNIVERSITY OF GRONINGEN, Netherlands  
CATHOLIC UNIVERSITY OF LEUVEN, Belgium  
UNIVERSITY OF PERUGIA, Italy  
UNIVERSITY PAUL SABATIER, TOULOUSE III, France  
UNIVERSITY OF PORTO, Portugal

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**Maximum grant:**

745 200 € (30 000 € consortium + 715 200 € scholarships), 2010

670 800 € (30 000 € consortium + 640 800 € scholarships), 2011

654 800 € (30 000 € consortium + 624 800 € scholarships), 2012

576 400 € (30 000 € consortium + 546 400 € scholarships), 2013