

## Erasmus Mundus

The Erasmus Mundus programme launched in 2004 by the European Commission is a co-operation and mobility programme in the field of higher education which promotes the European Union as a centre of excellence in learning around the world. It supports European top-quality Masters Courses and enhances the visibility and attractiveness of European higher education in third countries. It also provides EU-funded scholarships for third country (Outside of EU) nationals participating in these Masters Courses, as well as scholarships for EU-nationals studying in third countries.

By supporting the international mobility of scholars and students, Erasmus Mundus intends to prepare its European and non-European participants for life in a global, knowledge-based society. The programme, a new global approach, is intended to strengthen European co-operation and international links in higher education by supporting high-quality European Masters Courses, by enabling students and visiting scholars from around the world to engage in postgraduate studies at European universities, as well as by encouraging the outgoing mobility of European students and scholars towards third countries (Out of EU countries).

Erasmus Mundus Masters Courses and scholarships will provide a framework to promote valuable exchange and dialogue between cultures.

- Details about the Erasmus Mundus programme can be found at:  
[http://europa.eu.int/comm/education/programmes/mundus/index\\_en.html](http://europa.eu.int/comm/education/programmes/mundus/index_en.html)

## Scholarships

According to the Erasmus Mundus rules, Euroa Aquae consortium offers every year about 25 scholarships for non-European participants. 2 years grants of 42,000 Euros are proposed after selection of candidates by the EuroAqua consortium and validation by the European Commission. The programme is also open to candidates who do not request financial support through Erasmus Mundus programme.

Scholarships for studying during 3 months in third countries through the Erasmus Mundus framework are offered to about 15 European students every year. EU participants are also supported by Erasmus and Leonardo grants.

- The time schedules for candidatures and selection process are available on the EuroaAqua website: [www.euroaqua.org](http://www.euroaqua.org)
- Application form may be obtained on request at: [euroaqua@unice.fr](mailto:euroaqua@unice.fr)



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## Joint Master of Science

A Joint Degree programme from 5 European Universities

University of Nice - Sophia Antipolis - France  
Brandenburg University of Technology Cottbus - Germany  
Budapest University of Technology and Economics - Hungary  
Technical University of Catalonia - Spain  
University of Newcastle upon Tyne - United Kingdom

## Hydroinformatics and water management

The evolution of human activities, in the foreground of climate changes and growing earth population, induces situations more and more complex to manage. The sustainable development of water resources in the aquatic environment and its management represents today a major challenge. The global aim of the management is to avoid or minimize risks of crises in water supply, irrigation, floods, waste waters treatment. In this context **Hydroinformatics**, a European concept encompassing progress of modelling technologies and management of capacities, emerges as an essential tool in activities aiming at satisfaction of social and economic requirements. The main objective of the Master is to prepare and train future scientists and engineers in charge of modelling and managing projects in hydro-technologies and environment. These professionals will assist decision-makers of local, regional, national and international collectivities, of public services, of utilities, or they will be involved in consulting activities with private companies. Their professional excellence will be accompanied by understanding of social and economic requirements the techniques should serve.

### Master programme structure

**EuroAqua** is based on a two years programme with 4 semesters of 30 ECTS (European Credits Transfer System). Participants must follow at least, 30% of the curricula in a different institution from their "European home institution". The course is defined as a joint activity by University of Nice-Sophia Antipolis (France), Brandenburg University of Technology Cottbus (Germany), Budapest University of Technology and Economics (Hungary), Technical University of Catalonia (Spain) and University of Newcastle upon Tyne (United Kingdom). Lectures and tutorials are given mainly in English, for a total number of less than 40 European and third-countries participants. The master is organized in a pedagogic continuum to provide:

- an introduction and common knowledge/soft skills to the participants offered by each of the consortium members during semester 1.
- the acquisition and the use of the hydroinformatics concepts, methods and tools done at the University of Newcastle upon Tyne during semester 2 for all participants.
- a thematic specialisation for semester 3, at one of the 4 partner universities, following one of 4 main options according to the partners expertise and moreover, the deep cooperation through the consortium members for the development of the master course and hydroinformatics: **hydroinformatics systems, urban waters management, inland waters management, decision support systems.**
- a research project or a professional practice during semester 4. The course provides one more research and one more practice oriented specialisations. The choice of a professional practice for the last semester answers to the demands of the participants who have then the opportunity to finalize their professional skills and understand importance of good practices which are essential for a good integration within the international professional community.

Coherence within the course programme and the consortium is established through Web-based collaboration in the spirit of a "Virtual European University".

The **EuroAqua** consortium awards joint degree (Msc) defined as **Master of Science in Hydroinformatics & Water management** recognized by all five participating countries and carrying the Erasmus Mundus label. **Every successful participant is like that graduated from the 5 European universities of the EuroAqua consortium.**



### Core Modules (semester 1 & 2)

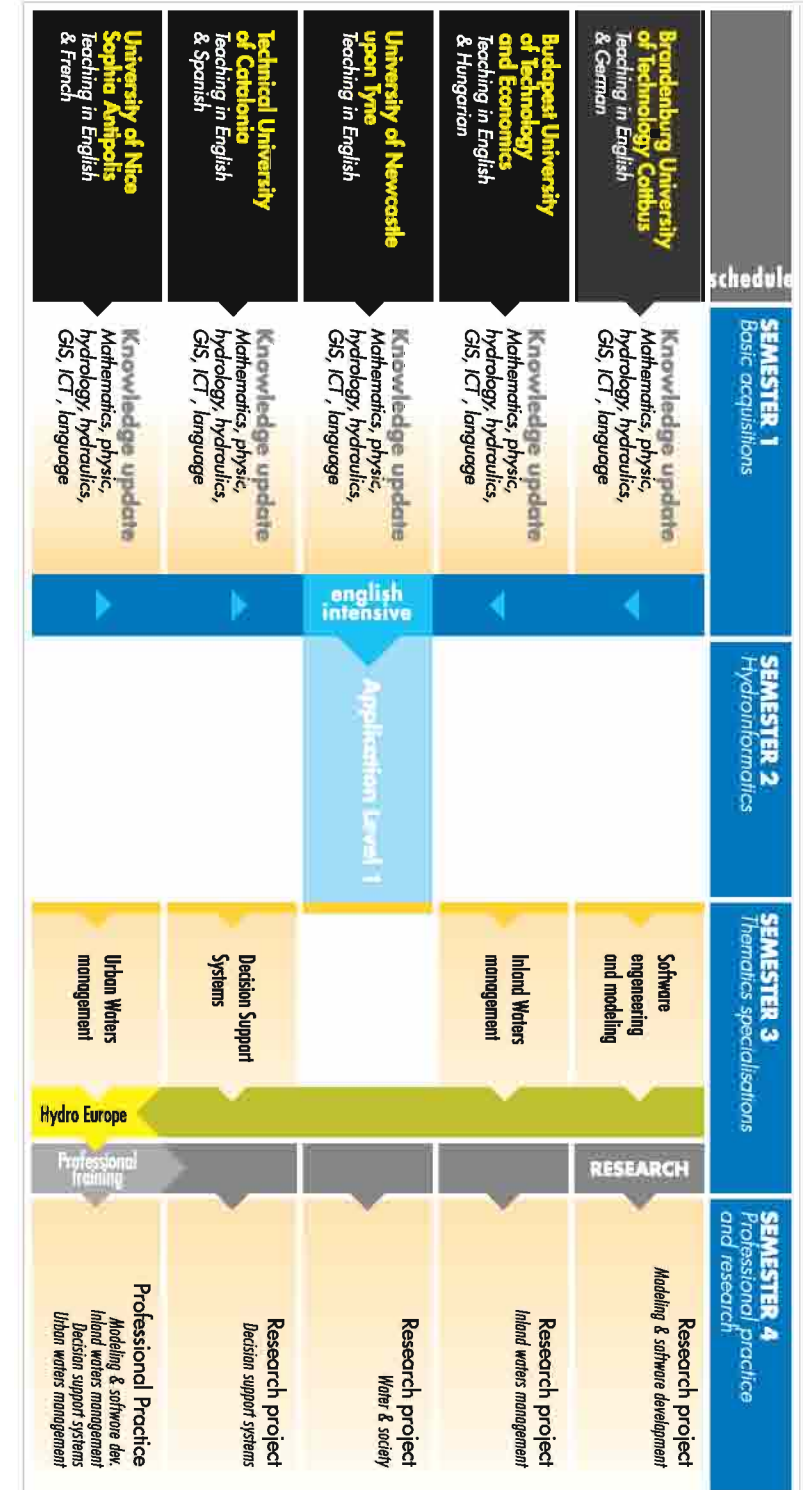
- Mathematics & Physics
- Hydrology & Hydraulics
- Numerical methods & computational hydraulics
- Water and aquatic environment management
- Hydroinformatics & Integrated Water Resources Management
- Introduction to software packages (commercial & industrial modelling systems)
- Databases & GIS, ICT
- Software engineering
- Web-based collaborative engineering

### Specialization modules (semester 3)

- Modelling methods for urban waters
- Methods for water supply and waste waters treatment
- Economical and legal environments - Water industry & municipalities
- Project management & communication
- Coupling free-surface and groundwater modelling
- Geometric modelling and presentation methods
- Modelling and development of complex hydroinformatics software systems
- Monitoring, data acquisition and documentation
- Modelling methods for inland surface waters
- Hydrological modelling and forecasting
- River basin management and planning
- Advanced hydrometry and data analysis in surface waters
- Artificial neural network for Decision Support Systems (DSS)
- Flood risk concepts and application in river basin management
- DSS for flood risk in urban areas
- Real time control and operation of irrigation canals, rivers and reservoirs

### Admission criteria

- Minimum qualification is 2nd class degree from university (BSc) or its equivalent. Preferred first degree subjects are Engineering (any branch), Environmental Sciences, Physics, Computer Sciences, Geography, Mathematics, Chemistry, Geology or a similar subject.
- Advanced level Mathematics is required.
- TOEFL score of minimum 575 (or equivalent) is required. Basic knowledge of one of the other languages (German, French, Spanish, Hungarian) used by the consortium has to be acquired during the 2 years programme. Evaluation of the level of scientific and engineering knowledge, as well as the English command of each candidate is made by the EuroAqua consortium.



Euro Hydro-Informatics and Water Management

