

**RATIFICACIÓ DEL MEMORANDUM D'ACORD DEL MÀSTER  
EUROAQUAE**

**DOCUMENT INFORMATIU**

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Vicerectorat de Política Acadèmica  
Abril 2006

**Erasmus Mundus Master's Programme in  
Euro Hydro-Informatics and Water Management**

**Memorandum of Agreement (M.O.A.)** between the Members of the Euro-Aquae Consortium comprising:

University of Nice–Sophia Antipolis (F),  
Brandenburg University of Technology, Cottbus (DE),  
Budapest University of Technology and Economics (HU),  
Technical University of Catalonia (ES),  
University of Newcastle upon Tyne (UK),

**Development of a  
Joint Degree of Master of Science in  
Euro Hydro-Informatics and Water Management**

**Objective**

The members of the Euro-Aquae Consortium agree the following principles to regulate the management and development of the Master's programme known as Euro Hydro-Informatics and Water Management. The parties agree to develop this initiative with the objective of achieving a fully integrated curriculum leading to the award of a joint degree. They agree on the following operational principles in addition to the formal principles set out in the joint application under the Erasmus Mundus Programme submitted to and approved by the European Commission (See Annex 1 for the guidelines and refer to the application).

**1. Co-ordinating Institution**

The Consortium agrees that the University of Nice–Sophia Antipolis (F) should act as “co-ordinating institution” within the Consortium.

The President of the University of Nice–Sophia Antipolis has nominated a member of that University's staff to act as co-ordinator, after consultation with the partner institutions. General administrative oversight of the programme as well as of its financial administration is assigned to the co-ordinator.

The Co-ordinator is responsible to and will be advised by the Administration and Curriculum Board.

Co-ordination will follow the rules of the Erasmus Programme and will be in agreement with relevant national legislation and regulations, to which the member universities of the Consortium are subject.

## **2. Administration and Curriculum Board**

The Consortium will appoint an Administration and Curriculum Board (ACB)

The membership of the Board is:

- One representative from each member university, nominated by the President of the member university from amongst the academic staff teaching on the programme, who are responsible for ensuring that the requirements of their home universities are met.
- Two student representatives. Registered students will elect their representatives from amongst their own number during the second term on an annual basis.
- Two external advisors, one from an academic background and one from a professional background, who shall serve for a period determined by the ACB (Currently these are Prof. A. v.d.Beken (Belgium) and Dr. J. Cunge (France), as nominated in the grant application).

The Board meets twice each year.

The Board is responsible for the oversight of the management of the programme including:

- Annually agreeing the admissions target for the programme, for both the target recruitment countries and the EU
- Application process and the selection / admission of students, bearing in mind principles of fair access
- Keeping under review the learning outcomes of the programme
- Design and validation of the content, coherence and assessment strategy for the programme
- Ongoing curriculum enhancement,
- Co-ordination of language policy and of language learning opportunities.
- Co-ordination of quality control,
- Standardization of ICT support
- Mutual recognition (through ECTS) of student performance and achievement
- Academic and administrative issues about students,
- Monitoring student achievement and progression
- Reviewing feedback from students and coordinating issues and actions arising
- Administrative issues about the organisation of teaching,
- Oversight of the degree programme handbook
- Advertising and public relations relating to the programme,
- Reporting to the European Commission as required,
- General Administrative and Financial Issues.
- Development of protocols for the quality assurance of the award in relation to the requirements of the different national quality assurance frameworks applicable to consortium members. Following initial programme approval to the satisfaction of all member institutions, drawing up an agreed scheme for programme quality assurance monitoring and review.

The Co-ordinator follows up decisions taken within the Board and reports to the Board about actions taken.

The members of the Board will take all measures to make the project successful in accordance with the spirit of the Erasmus Mundus programme.

Disagreements are to be settled within the Administration and Curriculum Board.

### **3. Mutually Agreed Principles within the Consortium:**

The following principles are mutually agreed within the Consortium with respect to the Application, Selection, Registration, Examination and Administration processes:

#### **3.1 Form of Application for Students**

Students submit applications to the programme co-ordinator

Documents to be submitted are:

- A letter of application from the candidate, setting out their suitability for admission to the programme
- A curriculum vitae.
- A description of previous academic programmes undertaken and of professional skills acquired.
- Degree certificates, and any additional supporting documents (and for EC nationals where available the Diploma Supplement).
  
- Recommendation letters (2 referees, at least one of whom must be able to provide an academic reference) submitted by the referee directly to the Co-ordinator
- In the case of applicants in professional practice, a reference from the employer.

The application must be submitted in English.

Applications are to be received by a date annually fixed by the Administration and Curriculum Board so as to meet application deadlines for financial support from the European Commission.

#### **3.2 Criteria for Admission**

Candidates must have a minimum of:

- The equivalent of a 2<sup>nd</sup> class degree from a recognised University (B.Sc.) (minimum qualification for entry). Preferred first degree subjects are Engineering (any branch), Environmental Sciences, Physics, Computer Sciences, Geography, Mathematics, Chemistry, Geology or a similar subject. Advanced level Mathematics or equivalent is also normally required.
- Applicants from professional practice have to demonstrate professional experience as an engineer or similar of at least 5 years.
- Applicants for whom English is not their first language must provide evidence of a satisfactory command of English, preferably by means of a TOEFL score of 550 or greater, or by an IELTS score of 6.5 or greater.
- Basic knowledge and practice of one of the other languages (German, French, Spanish, Hungarian) used by the consortium.

Applicants who hold non-standard qualifications, and/or have relevant experience, will be considered on an individual basis. They may be asked to take an oral interview.

### **3.3 Selection Procedure**

In any one year the number of candidates who meet the minimum admission requirements is likely to exceed the number of places available.

Each application will be assessed on a scale of 1-10 by two Board members according to common criteria agreed by the Board. Where deemed appropriate an oral interview may be held.

The results are reviewed by all members of the Administration and Curriculum Board including the two external advisors. The Board will determine the final list of students to whom places will be offered according to the following principles:

- Erasmus Mundus rules
- Academic and professional excellence of candidates
- Motivation and professional objectives according to the specialization of the applicant

The list of successful candidates is prepared by the Co-ordinator on behalf of the consortium and the invitation to join the Master's programme is issued after receiving the agreement of the European Commission through Erasmus Mundus Action 2. Students are notified by the co-ordinating institution about the outcome of their applications.

The universities of the Consortium will normally confirm the selection of students recommended by the Administration and Curriculum Board, but each institution reserves the right exceptionally to refuse admission if a candidate does not meet its formal admission requirements.

### **3.4 Enrolment of Students**

The consortium seeks to deliver the programme in the spirit of one European "virtual university", with a high level of collaborative working in the delivery of teaching and of learning support.

The official full student record, including records of qualifications on admission and credits obtained and transferred from one member institution to another and contributing to the award of the degree, will be maintained by the Co-ordinator.

Each member institution recognises the ECTS credit achieved by students studying at other institutions in the consortium.

For each student a record of academic progress and achievement in particular modules will be maintained by the member institution providing that module.

Marks for individual students' modules undertaken at member institutions will be recorded in appropriate national statistical returns by that institution, in accordance with the national requirements and procedures for those returns.

Both the co-ordinating institution and member institutions, as appropriate, will retain the appropriate records for a minimum of seven years in accordance with best practice.

### **3.5 Programme currency, coherence, improvement and co-ordination**

The "Administration and Curriculum Board" oversees achievement of:

- the objectives (2.1 of application),
- the content (2.2 of application and as summarised in Annex 2) and
- the acquired competencies and learning outcomes (2.3 of application)
- The homogeneous ICT infrastructure within the programme.

It proposes improvements with respect to these issues, designed to achieve coherence in the student educational experience across the Consortium.

In particular, the Board will as far as possible support mobility for students and teachers within European programmes such as Socrates, Marie-Curie etc.

Each member institution will individually provide and require each other to provide appropriate facilities and resources for students studying on the programme to be offered an appropriate learning experience.

The Board will agree arrangements for monitoring the quality of the programme, which shall reflect the core quality assurance requirements of the contributing institutions.

### **3.6 Examination of Students**

Assessment is regulated by Boards of Examiners at each Institution, reporting to the Curriculum and Management Board for overall assimilation and decisions on progression.

Marks from each module are weighted according to the module's ECTS credit value.

The range of marks according to the ECTS grading scheme is:

- Excellent (A-0)
- Very good (B-1)
- Good (C-2)
- Satisfactory (D-3)
- Sufficient (E-4)
- Fail (FX-5 /F-5)

Partner universities agree to mark according to the above common marking scheme. More detailed descriptors for each of these categories of marks will be

developed to ensure consistency of marking. Member institutions may need to map these categories of marks to their own marking scales.

The marks from all modules will normally be 4-E or better for successful completion. Exceptionally, compensation will be allowed by discretion of the Curriculum and Management Board for modules with grade FX. One re-sit examination shall be permitted per module.

### **3.7 Mutual recognition within the Consortium and Final Degree**

Each partner of the Consortium formally recognises the modules contained within the programme and their credit weightings.

The co-ordinator collects results from the partners and certifies to the Consortium the outcome of the assessments of each participant

The Diploma Supplement presents the details of the participant's academic programme and academic achievement.

The formal status of the award is that of Joint Degree, a single degree awarded jointly by the partner institutions. The degree certificate will be issued to individual students by the co-ordinating institution. The institutions agree to their logos being attached to a single degree parchment.

### **3.8 Codes of Discipline**

Students shall be subject to the disciplinary codes of each of the member institutions where the study is undertaken. If an alleged offence is committed within the precincts of one of the member institutions, the disciplinary code of that institution shall apply. When the location of the alleged offence is elsewhere than within the precincts of one of the member institutions, the co-ordinating institution's code and procedures shall apply.

### **3.9 Complaints Procedure**

A student wishing to complain about a specific service or facility provided by a specific member institution shall invoke the complaints procedure of that institution.

A student wishing to complain about any general aspect of the programme shall invoke the complaints procedure of the co-ordinating institution.

### **3.10. Appeals**

Academic appeals shall be made in accordance with procedures established by the Board. Responsibility for determining appeals at the programme level rests with the Administration and Curriculum Board

### **3.11 Quality Assurance**

Quality assurance takes place on two levels –first at the internal level of each partner university and second on an external level within the Consortium through external advisors (Prof. A. v.d.Beken, Belgium, representing the academic subject specialism; and Dr. J. Cunge, France, representing the profession). Both are members of the Administration and Curriculum Board. Their reports will be evaluated by the Board.

The maintenance of academic standards, the management and enhancement of procedures for quality assurance and control are the responsibility of the member institutions in accordance with their Charter, Statutes, Ordinances, Regulations and Rules or Instruments of Government. . [For example, the University of Newcastle upon Tyne requires that an external examiner is appointed to report on every degree programme. In addition to acting as external advisor to the consortium, the academic subject specialist will be invited to act as external examiner to Newcastle.]

While each institution will wish to reflect local arrangements, the member institutions will agree joint arrangements for quality assurance and control in recognition that inter-institutional arrangements will be an important and integral feature of setting and maintaining standards  
Responsibility for the management of quality assurance and control for the programme will reside with the Administration and Curriculum Board.

The Consortium agrees to provide all internal assessments to the external advisors.

### **3.13 Advertising and public relations**

The programme will be promoted in accordance with the standards of the European Commission (General Directorate for Education and Culture) and the Erasmus Mundus framework, through:

- website of the institutions of the consortium,
- on a specific website for the project,
- on the EC Erasmus Mundus website,
- on the list of masters' programmes of each national agency for higher education promotion (Cf. EduFrance, British Council, DAAD, ...)
- cultural services and diplomatic representations of the countries involved in the consortium,
- communication through scientific and professional societies and organizations,
- international scientific conferences organised by the consortium members,
- partnerships with numerous international companies of the profession.

The promotion of the programme is the responsibility of all the partners as agreed by the member institutions as members of the Board (see below). This action is clearly viewed and defined as a key element of the sustainability of the master course. The Administration and Curriculum Board will support and coordinate activities.

Each member institution agrees to the use of its name and logo for the purposes of promotional material, programme literature and other documentation of the programme.  
*[Barcelona to confirm that this statement is appropriate for them]*



### **3.14 Reporting to the EU Commission**

The co-ordinating institution is responsible for reporting to the Commission after consultation within the Administration and Curriculum Board.

### **3.15 Administrative and Financial Issues**

The overall programme grant will be managed by the Board, including tuition fees collected to cover general and local university costs. The tuition fee income will be administered by the co-ordinating institution in accordance with procedures agreed collectively through the Board.

The annual budget structure including student targets, the level of tuition fees and student support arrangements for the programme shall be recommended by the Board to each of the member institutions for confirmation on an annual basis.

### **3.16 Intellectual Property Rights**

Each of the member institutions acknowledges that nothing herein shall alter the ownership or control of any Intellectual Property.

The establishment of IPR relating to module content will remain with the institution responsible for delivery of that module. Where existing copyright material is used, this must be acknowledged. Delivering institutions shall be responsible for obtaining the necessary third party authorisation.

All agreements between companies and institutions in matters relating to project work must take account of the institutions' regulations concerning the availability of the final dissertation for examination purposes.

Agreements must be drawn up between companies and the institutions in respect of IPR arising from a project. Such agreements would take into account the student, the institution and the company. Also within the agreement a statement must be made about opportunities for publication arising from the work in the project. Any secrecy clause must not conflict with the regulation of the supervising institution.

## **4. Action and Cancellation:**

This agreement comes into effect after signature by the parties.

The agreement will be subject to review every three years.

Should any of the member institutions wish to withdraw from the agreement, they should provide written notice of intent to withdraw from the agreement no later than 12 months prior to the desired date of withdrawal. Nevertheless, all members are committed to ensuring to students still registered on the programme such

provision and support as specified in this agreement. The termination of the agreement must not compromise the possibility for students remaining on the programme to complete their studies in a manner comparable to that of previous cohorts.

The invalidity of a clause does not result in the invalidity of this agreement. In case of the invalidity of one of the above clauses the partners will replace the clause by mutual agreement.

Changes as well as modifications to this agreement shall be given in writing and approved by the Board following consultation with and approval by the member institutions. No sub-agreements have been made.

Continuation of the Master's programme after fulfilment of the agreement will be optional.

## **5. Application of Law and Dispute Resolution**

If any dispute arises between the member institutions they will in good faith attempt to negotiate a settlement but, if unsuccessful, will in good faith attempt a resolution through an alternative dispute resolution procedure (an ADR procedure) commissioned by the Curriculum and Administration Board



UNIVERSITY OF NICE–SOPHIA ANTIPOLIS (F)

On behalf of the University, I agree to abide by the terms of this Memorandum of Agreement for the joint degree of Master of Science in Euro Hydro-Informatics and Water Management

Signed

Date

Position



BRANDENBURG UNIVERSITY OF TECHNOLOGY, COTTBUS (DE)

On behalf of the University, I agree to abide by the terms of this Memorandum of Agreement for the joint degree of Master of Science in Euro Hydro-Informatics and Water Management

Signed

Date

Position



BUDAPEST UNIVERSITY OF TECHNOLOGY AND ECONOMICS (HU)

On behalf of the University, I agree to abide by the terms of this Memorandum of Agreement for the joint degree of Master of Science in Euro Hydro-Informatics and Water Management

Signed

Date

Position



TECHNICAL UNIVERSITY OF CATALONIA (ES)

On behalf of the University, I agree to abide by the terms of this Memorandum of Agreement for the joint degree of Master of Science in Euro Hydro-Informatics and Water Management

Ana Maria Sastre  
Vice-Rectorate of Academic Policy.

Date 28<sup>th</sup> April 2006



UNIVERSITY OF NEWCASTLE UPON TYNE (UK)

On behalf of the University, I agree to abide by the terms of this Memorandum of Agreement for the joint degree of Master of Science in Euro Hydro-Informatics and Water Management

Signed

Date

Position

## Annex 1

**The annex contains general guidelines published by the European Parliament, the Commission as well as within the announcement of the Erasmus Mundus programme which will be followed by the Consortium.**

### Entrance criteria

1. For Erasmus Mundus – Action 2 (grants), candidatures conform to the preamble, § 10, 13, 14 of the Decision 2317/2003/EC of the European Parliament and of the Council of 5 December 2003 establishing Erasmus Mundus programme:

*(10) The aim of this programme is to contribute to improving the quality of higher education in Europe and at the same time to have an impact on the visibility and perception of the European Union around the world, as well as building a capital of goodwill among those who have participated in the programme.*

*(13) In promoting international mobility, the Community should be mindful of the phenomenon commonly known as ‘the brain drain’.*

*(14) There is a need to step up Community efforts to promote dialogue and understanding between cultures world-wide, bearing in mind the social dimension of higher education as well as the ideals of democracy and respect for human rights, including gender equality, especially as mobility fosters the discovery of new cultural and social environments and facilitates understanding thereof, and in so doing to ensure that no group of citizens or of third-country nationals is excluded or disadvantaged as mentioned in Article 21(1) of the Charter of Fundamental Rights of the European Union.*

2. For Erasmus Mundus, candidatures conform to the articles 2, 3 and 11 of the Decision 2317/2003/EC of the European Parliament and of the Council of 5 December 2003 establishing Erasmus Mundus programme:

#### Article 2 **Definitions**

*For the purpose of this Decision:*

1. ‘higher education institution means any institution which according to national legislation or practice offers qualifications or degrees at that level, whatever such establishments may be called;

2. ‘third-country graduate student’ means a national of a third country other than those from EEA-EFTA States and candidate countries for accession to the European Union, who has already obtained a first higher education degree, who is not a resident of any of the Member States or the participating countries as provided for in Article 11, who has not carried out his or her main activity (studies, work, etc.) for more than a total of 12 months over the last five years in any of the Member States or the participating countries; and who has been accepted to register or is registered in an Erasmus Mundus Masters Course as described in the Annex;

3. ‘third-country scholar’ means a national of a third country other than those from EEA EFTA States and candidate countries for accession to the European Union, who is not a resident of any of the Member States or the participating countries as provided for in Article 11, who has not carried out his or her main activity (studies, work, etc.) for more than a total of 12 months over the last five years in any of the Member States or the participating countries, and who has outstanding academic and/or professional experience;

4. ‘graduate or postgraduate studies’ means courses of higher education study that follow a first degree lasting a minimum of three years and lead to a second or further degree.



Article 3

**Objectives of the programme**

1. *The programme's overall aim is to enhance the quality of European higher education by fostering cooperation with third countries in order to improve the development of human resources and to promote dialogue and understanding between peoples and cultures.*

2. *The programme's specific objectives are:*

*(a) to promote a quality offer in higher education with a distinct European added value, attractive both within the European Union and beyond its borders;*

*(b) To encourage and enable highly qualified graduates and scholars from all over the world, to obtain qualifications and/or experience in the European Union;*

*(c) To develop more structured cooperation between European Union and third-country institutions and greater European Union outgoing mobility as part of European study programmes;*

*(d) To improve accessibility and enhance the profile and visibility of higher education in the European Union.*

3. *The Commission shall, when pursuing the objectives of the programme, observe the Community's general policy on equal opportunities for men and women. The Commission shall also ensure that no group of citizens or third-country nationals is excluded or disadvantaged.*

Article 11

**Participation of EEA-EFTA States and candidate countries for accession to the European Union**

*The conditions and detailed rules on the participation of EEA-EFTA States and candidate countries for accession to the European Union in the programme shall be established in accordance with the relevant provisions of the instruments governing the relations between the European Community and these countries.*

## Annex 2

### Extract from Programme Specification

#### Programme Curriculum, Structure, and Features:

Euro-Aquae is a modular degree designed for flexible delivery at a number of institutions, allowing and encouraging mobility of students. It is part of the Erasmus Mundus programme, 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.

Erasmus Mundus 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 nationals participating in these Masters Courses.

The masters programme spans 4 semesters, or 2 years, and has the following partners:

- University of Nice-Sophia Antipolis (UNSA, France)
- Brandenburg University of Technology, Cottbus (BTUC, Germany)
- Budapest University of Technology and Economics (BUTE, Hungary)
- Technical University of Catalonia (UPC, Spain)
- University of Newcastle upon Tyne (UNUT, UK)

The programme is organized in a pedagogic continuum to provide introduction and common knowledge/soft skills (sem. 1 all locations), acquisition and the use of hydroinformatics concepts, methods and tools (sem. 2 UNUT), a thematic specialisation: hydroinformatics systems, urban waters management, inland management, decision support systems (sem. 3 all locations except UNUT) and for semester 4 (all locations), a research project or professional practice. The consortium issues a joint degree (MSc.) defined as Master of Sciences in Hydro- Informatics & Water Management recognized by all the participating countries.

Every MSc student takes modules to a total value of 120 ECTS credits over four semesters (two years).

Mobility is a fundamental concept of the programme which is used to develop and promote a common vision and professional capacity through a variety of specializations. The students must follow at least 30% (36 ECTS) of the curricula in a different institution from their “European home institution”. The mobility is applied in semesters 2, 3 and 4.

All students are appointed an academic supervisor and an industrial supervisor to advise on the work-based dissertation and any issues that may arise during the programme. All students are required to discuss their pattern of study with their academic tutor to ensure that they are following an appropriate programme.

The programme of study is as defined below:

In semester 1 of year 1, candidates take a total of 30 ECTS credits consisting of the following compulsory modules to value 6 ECTS credits,

<b>Code</b>	<b>ECTS Credits</b>	<b>Sem</b>	<b>Comp /Opt</b>	<b>Institution</b>	<b>Descriptive title</b>
EU-AQ-1.5-C	2	1	C	Any	Web-based collaborative engineering

LCExxx	4	1	C	Any/UNUT	English Language
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and compulsory modules to the value of 24 ECTS credits at any one selected institution as follows;

<b>Code</b>	<b>ECTS Credits</b>	<b>Sem</b>	<b>Comp /Opt</b>	<b>Institution</b>	<b>Descriptive title</b>
UNSA -1.1	6	1	C	UNSA	Mathematics and Physics
UNSA-1.2	6	1	C	UNSA	Hydrology and Hydraulics
UNSA-1.3	6	1	C	UNSA	Intro to Water and aquatic environment management
UNSA 1.4	6	1	C	UNSA	Computer skills, databases & GIS-ICT
EU-AQ-1.1-C	6	1	C	BTUC	Mathematics and Physics
EU-AQ-1.2-C	6	1	C	BTUC	Hydrology and Hydraulics
EU-AQ-1.3-C	6	1	C	BTUC	Intro to Water and aquatic environment management
EU-AQ-1.4-C	6	1	C	BTUC	Computer skills, databases & GIS-ICT
CIV716	7	1	C	UNUT	Computation, Modelling and Statistics
CIV717	12	1	C	UNUT	Hydrology Hydraulics & Water Resources
SVY803	5	1	C	UNUT	An Introduction to the fundamentals of GIS
BUTE-1.1	6	1	C	BUTE	Mathematics and Physics
BUTE-1.2	6	1	C	BUTE	Hydrology and Hydraulics
BUTE-1.3	6	1	C	BUTE	Intro to Water and aquatic environment management
BUTE 1.4	6	1	C	BUTE	Computer skills, databases &GIS-ICT
UPC 101	6	1	C	UPC	Applied Differential Equations
UPC 102	6	1	C	UPC	Hydrology
UPC 103	6	1	C	UPC	Hydraulics
UPC 104	6	1	C	UPC	Environmental Engineering
UPC 105	6	1	C	UPC	Computer skills, databases &GIS-ICT

In semester 2 of year 1, candidates should take 30 ECTS credits at UNUT:

<b>Code</b>	<b>ECTS Credits</b>	<b>Sem</b>	<b>Comp /Opt</b>	<b>Institution</b>	<b>Descriptive title</b>
CIV868	5	2	C	UNUT	Integrated River Basin Management
CIV955	5	2	C	UNUT	Hydroinformatic Systems Development
CIV866	5	2	C	UNUT	Computational Hydraulics
CIV865	5	2	C	UNUT	Catchment and River Modelling
SVY802	5	2	C	UNUT	Database applications for GIS
SVY838	5	2	C	UNUT	Introduction to programming in Java

In semester 1 of year 2, candidates take 30 ECTS consisting of 1 compulsory module (6 ECTS ), one of two optional modules (6 ECTS) and 18 ECTS at any 1 institution:

<b>Code</b>	<b>ECTS Credits</b>	<b>Sem</b>	<b>Comp /Opt</b>	<b>Institution</b>	<b>Descriptive title</b>
EU-AQ-3.X_E	6	1	C	Any	Hydro-Europe Working as virtual company/institute
EU-AQ-3.Y_E	6	1	O	Any	Research Introduction
EU-AQ-3.Y_C	6	1	O	Any	Pre-professional training
UNSA 3.1	5	1	C	UNSA	Modelling methods for urban waters
UNSA 3.2	3	1	C	UNSA	Methods for water supply and waste water treatment
UNSA 3.3	5	1	C	UNSA	Economical and legal environments
UNSA 3.4	5	1	C	UNSA	Project Management and communication
EU-AQ-3.1-C	6	1	C	BTUC	Coupling free-surface and groundwater modelling
EU-AQ-3.2-C	4	1	C	BTUC	Modelling business processes, workflow and information management
EU-AQ-3.3-C	4	1	C	BTUC	Geometric modelling and presentation methods
EU-AQ-3.4-C	4	1	C	BTUC	Monitoring, data acquisition and documentation
BUTE 3.1	6	1	C	BUTE	Modelling methods for inland surface waters
BUTE 3.2	4	1	C	BUTE	Hydrological modelling and forecasting
BUTE 3.3	4	1	C	BUTE	River basin management and planning
BUTE 3.4	4	1	C	BUTE	Advanced hydrometry and data analysis
UPC 301	3	1	C	UPC	Artificial neural network in decision support systems
UPC 302	5	1	C	UPC	Flood risk concepts and application in river basin management

UPC 303	5	1	C	UPC	Floods and urban drainage
UPC 304	5	1	C	UPC	Real time control of hdraulic systems

In semester 2 of year 2, candidates should take one of the following modules worth 30 ECTS credits:

<b>Code</b>	<b>ECTS Credits</b>	<b>Sem</b>	<b>Comp /Opt</b>	<b>Institution</b>	<b>Descriptive title</b>
EU-AQ-4.1_C	30	2	O	Any	Research and development project
EU-AQ-4.1_E	30	2	O	Any	Professional practice