



FREIE UNIVERSITÄT BOZEN

LIBERA UNIVERSITÀ DI BOLZANO

FREE UNIVERSITY OF BOZEN · BOLZANO

Fakultät für Informatik

Facoltà di Scienze e tecnologie informatiche

Faculty of Computer Science

Study Manifesto

## **MASTER IN COMPUTER SCIENCE**

(DM 270/2004)

2010/2011 Academic Year

subject to change

21.04.2010

## EDUCATIONAL OBJECTIVES AND STUDY REGULATIONS

The objective of the Master in Computer Science is the education of graduates who will:

1. have a thorough knowledge of both the foundations and the applications of the fundamental fields of computer science;
2. have a thorough knowledge of scientific research methods and understand and use the tools of discrete and continuous mathematics and of applied mathematics and physics that are at the basis of computer science and its applications;
3. have a thorough knowledge of the principles, the structures and the use of computer systems;
4. know the foundations, the techniques and the methods for the design and development of information systems;
5. know the different application areas also in relation to the local, national and international economic background;
6. possess elements of corporate and professional culture;
7. write and speak fluently at least one European language besides Italian, also in relation to disciplinary vocabularies;
8. be able to work with a high degree of autonomy, accepting responsibility for projects and structures.

In order to obtain the Master Degree students have to acquire 120 credits. The course has a duration of two years.

This course has been reformed according to the guidelines of the Bologna process. ECTS (European Credit Transfer System) has been adopted.

N.B. Some of the Study Regulations can be overridden by international agreements, particularly in the case of European Masters Programmes.

## POSSIBLE CAREER OPPORTUNITIES

Graduates of the Master in Computer Science will be able to work in the following areas:

- analysis, formalization and design of software systems for the solution of complex problems in various application areas, such as industry, the service sector, the environment, health, heritage and public administration;
- management and updating of high quality information systems and telematic networks, also in critical environments;
- research and innovation in industrial, public and academic laboratories.

## LANGUAGES USED IN TEACHING

The language in all the lectures in the Master in Computer Science is English.

## ADMISSION REQUIREMENTS

For the academic year 2010/2011 the Free University of Bozen - Bolzano set the maximum number of students who can be admitted to the **Master in Computer Science** to 45 EU citizens and 35 non-EU citizens.

40 study places for EU citizens and 31 study places for NON EU citizens are available in the first pre-enrolment session. All study places not assigned in the first session will be added to the 5 study places for EU citizens and 4 study places for NON EU citizens set aside for the second pre-enrolment session.

It is not allowed to study simultaneously at several universities or in several courses of the same university.

Candidates are eligible to enrol for the Master if they possess an Italian bachelor degree ("diploma di laurea") in Computer Science (*Scienze e tecnologie informatiche*, classe L-31), Information Engineering (*Ingegneria dell'informazione*, classe L-08), Physics (*Scienze e tecnologie fisiche*, classe L-30) or Mathematics (*Scienze matematiche*, classe L-36), or an equivalent Italian degree obtained according to the regulations previously in force or other degrees in the field of Computer Science, Physics or Mathematics awarded abroad and recognized as suitable. Non Italian candidates are eligible to enrol for the Master Degree programme if they possess a bachelor degree in computer science, or in computer engineering, or in physics, or in mathematics, or another degree with a sufficient number of credits in computer science according to the evaluation of the Selection Committee.

Candidates who do not possess the required qualification at the moment of pre-enrolment are admitted to pre-enrolment if they have earned **at least 130 CFU (Credit Points)**.

Besides the aforementioned qualifications, candidates must also have adequate knowledge of the course's teaching language and adequate general and specific knowledge. These requirements must be declared by the candidate in his/her "Dossier" (see below).

## PRE-ENROLMENT

There are two pre-enrolment sessions: March – April, April – August.

Pre-enrolling in the first session allows the admitted candidate to:

- have a place at the Free University of Bozen/Bolzano guaranteed in advance;
- have a greater chance of obtaining accommodation in a student residence (if applied);
- take advantage of a discount for a summer language course.

Nota Bene: Those who pre-enrol for the Master in Computer Science in the first session cannot pre-enrol for the same course in the second session. They can, however, pre-enrol for other undergraduate courses.

The application for pre-enrolment must be done through the website of the Free University of Bozen - Bolzano ([www.unibz.it](http://www.unibz.it)). Those who do not have an Internet access can use the computers provided for this purpose by the Free University of Bozen - Bolzano (either in Bolzano or in Bressanone). The form must be filled in online and must be printed out entirely and signed. It must be handed in or sent by post to the Student Secretariat of Bozen - Bolzano no later than:

- **9<sup>th</sup> April 2010, 12:00 midday. for the 1<sup>st</sup> session\***
- **20<sup>th</sup> August 2010, 12:00 midday for the 2<sup>nd</sup> session**

\* Applications delivered after this deadline will be automatically registered for the 2<sup>nd</sup> session.

**The date of the postmark will not be taken into consideration.** Postal service shipping can take a very long time. The candidate must ensure an early delivery of the documents! Applications that will arrive after the deadline, or by e-mail or fax will not be taken into consideration. In case of incomplete applications, the Selection Committee can exclude the candidate from the admission procedure.

The following documents must be enclosed with the pre-enrolment application:

- a passport-size colour photo;
- a photocopy of a valid identity card or passport (front/back);
- the dossier (see section entitled "Selection procedure");
- copy of the **declaration of equivalent value** of the study title (for students with qualifications acquired abroad only) – see next paragraph
- copy of the **valid permit of stay for Italy** (for Non EU citizens with residence in Italy only) – see next paragraph

In the event that the candidate wishes to pre-enrol for more than one programme, an application form and accompanying documentation must be completed for each degree programme. Evaluation can then only take place from the documentation presented with the application form by the candidate. In order to avoid long queues, it is recommended that the delivery of the documents does not take place in the last few days before the deadline.

**Candidates with qualifications from abroad** must deliver – at the latest upon enrolment – the original of **declaration of equivalent value**, together with original or authenticated copy of the study title, and an official translation into Italian (a translation is not necessary for qualifications obtained in a German-speaking country). The declaration of equivalent value is issued by the Italian consulate or embassy abroad and confirms that the qualification obtained by the candidate would grant him/her entry to a similar university course in the country in which the qualifications were achieved. The declaration must be applied for as soon as possible since it can often require long processing times.

**Non EU candidates with valid permit of stay for Italy** (for one of the reasons observed in article 39, paragraph 5 of the legislative decree of 25.07.1998, n. 286) apply directly to the University, as described above. These candidates must attach to the pre-enrolment application a copy of the valid permit of stay for Italy ("**permesso di soggiorno**" for work, for family reasons, for political or humanitarian asylum, for religious motives). A permit of stay for study reasons or tourism is not sufficient. If the permit deadline has expired, a renewal request must also be attached.

Please note: If no copy of the permit will be delivered, the candidate will be automatically given same status as Non EU citizens resident abroad, who must apply for admission through the local Italian authorities in their country of origin.

**Non-EU candidates resident abroad** must carry out the **enrolment procedures both through the Italian authorities** (consulate or embassy) in the country in which they obtained or are to obtain their academic qualifications **and directly with the university**. The deadlines imposed by the Italian Ministry of Education, Universities and Research ([www.study-in-italy.it](http://www.study-in-italy.it)) must be respected. Should candidates not follow this procedure with their local Italian consulate, the application that they delivered direct to the university will be declared null and void. The Italian authorities abroad are the only ones able to accept and send applications to the university. Please note that Non EU-citizens resident abroad can apply for one course only!

## **SELECTION PROCEDURE AND ADMISSION RANKING LIST**

The selection procedure is administered by a Selection Committee who evaluates the applicant's **dossier** that must be written in English and must be sent by every applicant student together with their pre-enrolment form. The dossier is composed of the following documents:

### *1. Study Curriculum:*

The Study Curriculum must be compiled by using the electronic data sheet that can be downloaded from the pre-enrolment web page ([www.unibz.it](http://www.unibz.it)); the following data must be included, subject to the exclusion from the admission ranking list:

- Name of the completed bachelor degree programme;
- University awarding the qualification;
- Enrolment date;
- Legal duration of the degree programme;
- Indication of the grade scale (maximum, minimum, minimum pass grade) ;
- Indication of the value of one credit point in hours, or its equivalence to ECTS credit points;
- Details of the degree programme, with an indication of:
  - name of each course in the original language and English translation;
  - credit points of each course;
  - lecture and lab/exercise hours of each course;
  - grade obtained at the exam;
  - study plan year of the exam;
  - calendar year of the exam;
  - university at which the exam was taken;

NB: The lack of adequate information on the amount of credit points and of lecture and lab/exercise hours (when applicable) of a course, will result in the Selection Committee not considering in any way the course in the evaluation of the applicant and in the computation of the points assigned to the candidate.

The study curriculum has to be certified by an academic transcript of exams from the University awarding the qualification.

### *2. Evidence of knowledge of the English language*

The candidates who attended a university degree programme in English do not have to submit additional documentation. Conversely, candidates must enclose one of the following documents:

- an international language certificate that appears on the list of the Language Centre of the Free University of Bozen - Bolzano (the validity of the certificate is assessed by the Language Centre);
- a certificate attesting attendance of a university degree programme with at least 30% of lectures held in English;
- a certificate attesting attendance of a high school in English, or of a high school having English amongst its subjects;
- any other documentation certifying the applicant's language knowledge. Validity will be assessed case by case by the Selection Committee.

It is under the candidate's responsibility to provide appropriate certification for the knowledge of the English language. The commission reserves the right to verify the candidate's knowledge of the English language by a language test before the publication of the admission ranking list.

### *3. Personal statement letter*

A letter, no longer than one side of typed A4, written in English, in which the candidate explains why he/she would like to enrol on this degree programme

The results of this selection procedure will be published as ranking lists for enrolment: one for EU citizens and one for non-EU citizens.

The ranking lists are based on the evaluation of the dossier which candidates had handed in. The criteria for the evaluation of the dossier are:

- ◆ Max 10 points can be attributed to the dossier evaluation, considering the mark average gained by the candidate upon pre-enrolment
- ◆ English knowledge certification does not add further points, but is required for the student's admission
- ◆ The personal statement does not add further points, but is relevant in case of ex-aequo.

The ranking lists will be published on the notice boards of the Faculty as well as on the web pages of the university ([www.unibz.it](http://www.unibz.it)).

## HOW CANDIDATES OF THE FIRST SESSION ARE GUARANTEED A PLACE ON THE COURSE

Those candidates who have been admitted through the rank lists will have to pay the first instalment of university fees (€ 705,50) and deliver the receipt to the Student Secretariat **by 30<sup>th</sup> June 2010**. (Please note that it is not enough to make the payment but it is necessary to hand in the relevant payment receipt!). Once this receipt has been received, candidates are guaranteed a place on the course. Those who do not deliver the receipt to the Student Secretariat by the deadline, will automatically lose their place and there will be a period where candidates of the 1<sup>st</sup> session on the waiting list will be able to enrol. If not all study places of the first session are occupied, the free places will be assigned in the 2<sup>nd</sup> session.

Please note that payment does not allow candidates to get student status, which will be acquired upon enrolment in September. If candidates with a guaranteed study place do not enrol, there will be no refund of the university fees unless Non-EU candidates resident abroad do not receive the necessary documents from the Italian authorities in his/her country.

## ENROLMENT

Aspiring students well positioned on the ranking list may enrol for the **Master in Computer Science**. They need to show up in person and submit their application **by 29<sup>th</sup> October 2010, 12:00 midday** at the Student Secretariat in Bozen - Bolzano.

The receipt of the first payment of university fees (if this was not delivered in June) must be enclosed with the application.

**Prospective students with secondary school certificates or qualifications from abroad** must also enclose:

- original of the declaration of equivalent value of the university certificate/qualification issued by the Italian consulate or embassy abroad;
- original or authenticated copy of the academic certificate;
- original of the official translation of their academic qualification into Italian (translation is not necessary if the certificates have been issued in German)

**Non-EU citizens** must also enclose a valid residence permit for stays in Italy.

Students intending to transfer from another Italian university to the Free University of Bozen-Bolzano, must enclose with the enrolment form a copy of the transfer application presented at their university of origin.

The ranking list is only valid for the academic year in question. In the event that candidates on the list do not apply to become students by the date stated, the Free University of Bozen - Bolzano reserves the right to accept applications from students further down the list. The names will be published on [www.unibz.it](http://www.unibz.it).

Candidates who are high in the ranking lists so that they can be selected for more than one degree programme can only enrol for one of these courses. Once they have enrolled for this course, they lose the right to enrol for another course or to move up in the rank lists of other courses.

## TUITION FEES

Enrolment taxes and fees for the 2010/2011 academic year and the provincial tax for the right to study amount to **€ 1.280,50**.

The fees must be paid via bank transfer in **two instalments**:

- the first instalment\* of € 705,50 by 30<sup>th</sup> June 2010 (for pre-enrolled students of the first session) or at the time of enrolment (for pre-enrolled students of the second session),
- the second instalment of € 575 by 31<sup>st</sup> March 2011.

\* The amount of the first instalment includes the provincial tax of € 130,50 and the virtual duty stamp of € 14,62.

In order to enrol, the enrolment the first instalment must be paid.

Delayed payment of the second instalment will result in a fine being levied. Students who have not paid their taxes or other fees will be unable to take exams and will not be able to transfer to other universities or other degree programmes.

Disabled students with a disability up to or exceeding 66% are completely exonerated from paying university fees and the provincial tax: the disability certificate, issued by the health authorities, must be presented at the beginning of the academic year. Foreign students who have been granted a scholarship from the Italian government are also exonerated from all university fees and the provincial tax.

## STUDY GRANTS AND STUDENT ACCOMMODATION

Information regarding study grants, refund of the provincial tax for the right to study and the assignment of accommodation may be requested at the "Amt für Hochschulförderung, Universität und Forschung - Ufficio per il Diritto allo Studio universitario, l'Università e la Ricerca scientifica" of the Autonomous Province of Bozen - Bolzano. Application for the above assistance is to be submitted by the official deadline.

Applications for **accommodation** can be accepted starting Wednesday, 7<sup>th</sup> April 2010, 09:00 A.M. From this date onwards, applications can be handed in personally or sent by fax to the above mentioned office. The application form will be available online on the website of the office at the beginning of April. It is possible and also advisable to do the application for accommodation already upon pre-enrolment at the university or before knowing the admission procedure results. The assignment of accommodation in student hostels follows a first-come first-served policy, in which applications handed in personally have priority.

For further questions concerning **study grants**, students and candidates can also contact the "Südtiroler HochschülerInnenschaft" (sh.asus) which can give important information and help with the online application. Addresses and telephone contacts are indicated on the last page of this Manifesto.

## ADVISORY SERVICE

The Advisory Service of the Free University of Bozen - Bolzano informs prospective students about the faculties and the degree courses offered and provides support regarding the choice of study.

In the Infopoints in Bolzano and Bressanone prospective students can find information material and fetch information about the courses. There is also an individual consultation service available for anyone who is interested.

The Advisory Service guarantees full support for disabled students throughout their time at the University. Address and telephone contact for the relevant office are indicated on the last page of this manifesto.

## INTENSIVE COURSES AVAILABLE AT THE LANGUAGE CENTRE

The Language Centre organizes **beginners courses** in the three languages (**2<sup>nd</sup> August - 10<sup>th</sup> September 2010**) for those students who need to prepare for the study in English, German and Italian. We strongly recommend to enroll on one of these courses if you are an absolute beginner in one of the three teaching languages of your degree course. The **deadline for enrolment** on all these language courses is **23<sup>rd</sup> July 2010**.

## CURRICULA

The Master in Computer Science comprises 120 Credit Points (Credit Points = CP) and has a legal duration of two years. Each year's course is divided into two semesters.

Within the Master the student must choose one of the following curricula:

- Curriculum "General Computer Science"
- Curriculum "Information and Data Technologies for Web Systems"
- Curriculum "Semantic Web"
- Curriculum "Software Engineering"
- Curriculum "Management and Technologies of Information Systems"

The Curriculum must be chosen at the moment of enrolment. After that date, changes of Curriculum can be made with the approval of the Degree Programme Committee.

Each student may submit an individual study plan; students participating to programmes involving multiple universities (such as the European Masters Programmes) must always submit an individual study plan. Individual study plans are subject to the approval of the Degree Programme Committee.

## Curriculum "General Computer Science"

| 1 <sup>st</sup> year                       |           |               |
|--|-----------|---------------|
| Courses                                    | Exam      | Credit Points |
| <b>1<sup>st</sup> Semester</b>             |           |               |
| Theory of Computing                        | yes       | 8             |
| Data Warehousing and Data Mining           | yes       | 8             |
| Software Process Management                | yes       | 8             |
| Technical and Scientific Communication     | pass/fail | 4             |
| Research Methods                           | pass/fail | 2             |
| <b>2<sup>nd</sup> Semester</b>             |           |               |
| Functional and Logic Programming Languages | yes       | 8             |
| Computer Networks                          | yes       | 8             |
| Optional Courses*                          | yes       | 16            |

| 2 <sup>nd</sup> year                 |                 |               |
|--------------------------------------|-----------------|---------------|
| Courses                              | Exam            | Credit Points |
| <b>3<sup>rd</sup> Semester</b>       |                 |               |
| Advanced Algorithms                  | yes             | 4             |
| Laboratory in Statistics             | pass/fail       | 4             |
| Seminar in Human-Machine Interaction | pass/fail       | 4             |
| Optional Courses*                    | yes             | 8             |
| Free choice**                        | yes - pass/fail | 8             |
| <b>4<sup>th</sup> Semester</b>       |                 |               |
| Thesis                               | Degree          | 30            |

\* students cannot choose more than 5 optional courses

\*\* students can choose both courses that foresee a final exam and courses that foresee a pass/fail test

## Curriculum "Information and Data Technologies for Web Systems"

| 1 <sup>st</sup> year                   |           |               |
|--|-----------|---------------|
| Courses                                | Exam      | Credit Points |
| <b>1<sup>st</sup> Semester</b>         |           |               |
| Theory of Computing                    | yes       | 8             |
| Data Warehousing and Data Mining       | yes       | 8             |
| Advanced Internet Technologies         | yes       | 8             |
| Technical and Scientific Communication | pass/fail | 4             |
| Research Methods                       | pass/fail | 2             |
| <b>2<sup>nd</sup> Semester</b>         |           |               |
| Information Search and Retrieval       | yes       | 8             |
| Computer Networks                      | yes       | 8             |
| Optional Courses*                      | yes       | 16            |

| 2 <sup>nd</sup> year                 |                 |               |
|--------------------------------------|-----------------|---------------|
| Courses                              | Exam            | Credit Points |
| <b>3<sup>rd</sup> Semester</b>       |                 |               |
| XML Data Management                  | yes             | 4             |
| Laboratory in Statistics             | pass/fail       | 4             |
| Seminar in Human-Machine Interaction | pass/fail       | 4             |
| Optional Courses*                    | yes             | 8             |
| Free choice**                        | yes - pass/fail | 8             |
| <b>4<sup>th</sup> Semester</b>       |                 |               |
| Thesis                               | Degree          | 30            |

\* students cannot choose more than 5 optional courses

\*\* students can choose both courses that foresee a final exam and courses that foresee a pass/fail test

## Curriculum "Semantic Web"

| 1 <sup>st</sup> year                    |           |               |
|---|-----------|---------------|
| Courses                                 | Exam      | Credit Points |
| <b>1<sup>st</sup> Semester</b>          |           |               |
| Theory of Computing                     | yes       | 8             |
| Semantic Web Technologies               | yes       | 8             |
| Advanced Internet Technologies          | yes       | 8             |
| Technical and Scientific Communication  | pass/fail | 4             |
| Research Methods                        | pass/fail | 2             |
| <b>2<sup>nd</sup> Semester</b>          |           |               |
| Knowledge Representation and Ontologies | yes       | 8             |
| Computational Logic                     | yes       | 8             |
| Information Search and Retrieval        | yes       | 8             |
| Optional Courses*                       | yes       | 8             |

| 2 <sup>nd</sup> year                 |                 |               |
|--------------------------------------|-----------------|---------------|
| Courses                              | Exam            | Credit Points |
| <b>3<sup>rd</sup> Semester</b>       |                 |               |
| XML Data Management                  | yes             | 4             |
| Computational Linguistics            | yes             | 4             |
| Laboratory in Statistics             | pass/fail       | 4             |
| Seminar in Human-Machine Interaction | pass/fail       | 4             |
| Optional Courses*                    | yes             | 4             |
| Free choice**                        | yes - pass/fail | 8             |
| <b>4<sup>th</sup> Semester</b>       |                 |               |
| Thesis                               | Degree          | 30            |

\* students cannot choose more than 3 optional courses

\*\* students can choose both courses that foresee a final exam and courses that foresee a pass/fail test

### Curriculum "Software Engineering"

| 1 <sup>st</sup> year                       |           |               |
|--|-----------|---------------|
| Courses                                    | Exam      | Credit Points |
| <b>1<sup>st</sup> Semester</b>             |           |               |
| Theories and Techniques of Optimization    | yes       | 8             |
| Data Warehousing and Data Mining           | yes       | 8             |
| Software Process Management                | yes       | 8             |
| Technical and Scientific Communication     | pass/fail | 4             |
| Research Methods                           | pass/fail | 2             |
| <b>2<sup>nd</sup> Semester</b>             |           |               |
| Functional and Logic Programming Languages | yes       | 8             |
| Computer Networks                          | yes       | 8             |
| Optional Courses*                          | yes       | 16            |

| 2 <sup>nd</sup> year                 |                 |               |
|--------------------------------------|-----------------|---------------|
| Courses                              | Exam            | Credit Points |
| <b>3<sup>rd</sup> Semester</b>       |                 |               |
| Advanced Algorithms                  | yes             | 4             |
| Laboratory in Statistics             | pass/fail       | 4             |
| Seminar in Human-Machine Interaction | pass/fail       | 4             |
| Optional Courses*                    | yes             | 8             |
| Free choice**                        | yes - pass/fail | 8             |
| <b>4<sup>th</sup> Semester</b>       |                 |               |
| Thesis                               | Degree          | 30            |

\* students cannot choose more than 5 optional courses

\*\* students can choose both courses that foresee a final exam and courses that foresee a pass/fail test

### Curriculum "Management and Technologies of Information Systems"

| 1 <sup>st</sup> year                                    |           |               |
|---|-----------|---------------|
| Courses   | Exam      | Credit Points |
| <b>1<sup>st</sup> Semester</b>                          |           |               |
| Infrastructures for open service oriented architectures | yes       | 4             |
| Data Warehousing and Data Mining                        | yes       | 8             |
| Open tools and technologies for IT management           | yes       | 4             |
| Requirements and Design of Software Systems             | yes       | 8             |
| Technical and Scientific Communication                  | pass/fail | 4             |
| <b>2<sup>nd</sup> Semester</b>                          |           |               |
| Computer Networks                                       | yes       | 8             |
| Database Management and Tuning                          | yes       | 4             |
| Conceptual Modeling for Information Systems             | yes       | 4             |
| Optional Courses*                                       | yes       | 16            |

| 2 <sup>nd</sup> year                 |                 |               |
|--------------------------------------|-----------------|---------------|
| Courses                              | Exam            | Credit Points |
| <b>3<sup>rd</sup> Semester</b>       |                 |               |
| Laboratory in Statistics             | pass/fail       | 4             |
| Seminar in Human-Machine Interaction | pass/fail       | 4             |
| Internship                           | pass/fail       | 10            |
| Optional Courses*                    | yes             | 4             |
| Free choice**                        | yes - pass/fail | 8             |
| <b>4<sup>th</sup> Semester</b>       |                 |               |
| Thesis                               | Degree          | 30            |

\* students cannot choose more than 4 optional courses

\*\* students can choose both courses that foresee a final exam and courses that foresee a pass/fail test

## Optional Courses

Optional courses offer students the opportunity to further develop their knowledge in a specific area within the chosen curriculum.

Students must choose all their optional courses from the list of optional courses that are offered for the chosen curriculum.

The optional courses planned for all the curricula in the academic year 2010/2011 are listed in the following table.

| Optional courses  | Curricula |       |    |    |      | Credit Points |
|---|-----------|-------|----|----|------|---------------|
|   | GCS       | IDTWS | SW | SE | MTIS |               |
| <b>2<sup>nd</sup> Semester</b>                          |           |       |    |    |      |               |
| Advanced Software Engineering Methodology               | x         |       |    | x  |      | 4             |
| Advanced Web Systems                                    | x         | x     | x  |    | x    | 4             |
| Conceptual Modelling for Information Systems            | x         | x     | x  |    |      | 4             |
| Computational Logic                                     | x         |       |    |    |      | 8             |
| Computer Networks                                       |           |       | x  |    |      | 8             |
| Database Management and Tuning                          | x         | x     | x  |    |      | 4             |
| Distributed Databases                                   | x         | x     | x  |    | x    | 4             |
| Functional and Logic Programming Languages              |           |       | x  |    |      | 8             |
| Information Search and Retrieval                        | x         |       |    |    | x    | 8             |
| Knowledge Representation and Ontologies                 | x         |       |    |    |      | 8             |
| Machine Learning: Algorithms and Applications           | x         | x     | x  |    | x    | 4             |
| Non-classical Logics                                    | x         |       | x  |    |      | 4             |
| Software Engineering II                                 | x         |       |    | x  | x    | 4             |
| Software Evolution                                      | x         |       |    | x  | x    | 4             |
| Software Testing  | x         |       |    | x  | x    | 4             |
| Temporal and Spatial Databases                          | x         | x     | x  |    |      | 4             |
| Text Processing   | x         | x     | x  |    |      | 4             |
| <b>3<sup>rd</sup> Semester</b>                          |           |       |    |    |      |               |
| Advanced Internet Technologies                          | x         |       |    | x  | x    | 8             |
| Computational Linguistics                               | x         | x     |    |    |      | 4             |
| Digital Libraries                                       | x         | x     | x  |    | x    | 4             |
| Formal Methods  | x         |       | x  |    |      | 4             |
| Infrastructures for Open Service Oriented Architectures | x         | x     |    | x  |      | 4             |
| Internet and Mobile Services                            | x         | x     | x  | x  | x    | 4             |
| Introduction to Artificial Intelligence                 | x         | x     | x  |    | x    | 4             |
| Introduction to Linguistics                             | x         | x     | x  |    |      | 4             |
| Moving Object Databases                                 | x         | x     | x  |    |      | 4             |
| Open Source Software Engineering                        | x         |       |    | x  | x    | 4             |
| Open Tools and Technologies for IT Management           | x         | x     |    | x  |      | 4             |
| Requirements and Design of Software Systems             | x         | x     |    | x  |      | 8             |
| Semantic Web Technologies                               | x         | x     |    |    |      | 8             |
| Seminars in Databases                                   | x         | x     | x  |    |      | 4             |
| Similarity Search                                       | x         | x     | x  |    |      | 4             |
| Software Metrics  |           |       |    | x  |      | 4             |
| Theories and Techniques of Optimization                 | x         | x     |    |    |      | 8             |
| XML Data Management                                     | x         |       |    |    | x    | 4             |

**GCS** = "General Computer Science"; **IDTWS** = "Information and Data Technologies for Web Systems"; **SW** = "Semantic Web"; **SE** = "Software Engineering"; **MTIS** = "Management and Technologies of Information Systems"

## Teaching and learning activities

Various kinds of teaching and learning activities are planned that will, in different ways, confer practical and theoretical knowledge:

- **Courses:** regular meetings with the students where the lecturer teaches the subject matter of the course syllabus.
- **Project Courses:** regular meetings with the students where the lecturer teaches the foundations of the subject matter and students immediately apply the acquired theoretical knowledge in the development of a software product.
- **Seminar Courses:** regular meetings with the students in the form of seminar presentations where advanced topics are discussed; the presentations are given by experts of the area and/or by the participating students, who deepen a specific topic proposed by the lecturer.
- **Exercise and practice sessions:** regular meetings with the students accompanying Courses and Project Courses; during the exercise and practice sessions the syllabus of the subject matter is revised and/or the students independently applies the acquired knowledge under supervision of the lecturer.
- **Internship:** external activity taking place in a public or private enterprise aimed at alternating study and work activity and at aiding future professional choices by means of a direct interaction with the working environment.
- **Projects:** activity where the students independently develop a scientific research activity under supervision of a lecturer and within the activities carried out in the Faculty; the focus is set in particular on planning, communication and teamwork skills.

## **Internship**

Internship is compulsory for the students of the Curriculum "Management and Technologies of Information Systems", and can be chosen also by the other students to acquire the required 8 free choice credits. Internships provide an important opportunity for coming into contact with the working environment, for putting into practice the theoretical knowledge acquired during the studies and for developing a critical thinking regarding future professional choices. Internships are planned for the second year of the course and may be carried out in any enterprise, whether public or private, in Italy or abroad. For further information, please refer to the Study Regulations of the Faculty of Computer Science.

## **Thesis and graduation examination**

The graduation thesis for attaining the Master in Computer Science consists in the public discussion of an original written report (thesis) by the student under the guidance of a supervisor. This report is either produced at the conclusion of a period of research or regards the planning of a project or a case analysis, and must show original thinking, mastery of the subjects under discussion, the capacity for independent work, and good communicative skills. For further information, please refer to the Study Regulations of the Faculty of Computer Science.

## **European Masters Programmes**

The Faculty of Computer Science offers further courses of specialisation: the European Masters Programmes. All European Masters Programmes running in the academic year 2010/2011 have been chosen as Erasmus Mundus Programmes by the European Union.

The programmes are:

- European Masters Programme in Computational Logic;
- European Masters Programme in Language and Communication Technologies;
- European Masters Programme in Software Engineering.

The European Masters Programmes are an extremely useful way for the European Union to take on the challenges created by globalization, thus the creation and promotion of European integrated study programmes whose aims are:

- to promote quality in the higher education sector in Europe and revaluating it so as to become attractive within and beyond the EU borders;
- to encourage outstanding graduates and scholars from all over the world to acquire qualifications and experience in the European Union;
- to develop a more structured co-operation network between the European Union and third-country institutions, increasing mobility from the European Union to other countries as part of European study programmes;
- to improve accessibility to and provide greater visibility for Europe's higher-education institutions.

The Faculty of Computer Science at the Free University of Bozen - Bolzano is amongst the research centres recognized by the European Union as a leader in this programme.

The European Masters Programmes are different to normal courses in three ways:

- The European Masters Programmes are organized by European universities internationally recognized as state-of-the-art research centres in the sector of the Master's specialization;
- Students following a European Masters Programme after their first year at the Free University of Bozen - Bolzano can complete their studies in any of the other partner universities of the European Masters Programme;
- At the end of the programme, students receive three qualifications: the Master in Computer Science degree from the Free University of Bozen - Bolzano (legally recognized in Italy), the same degree from the second university chosen by the student (legally recognized in the country where the university is located) and the European Masters Programme degree.

Amongst the **Partner Universities** of the European Masters Programmes of the Faculty of Computer Science there are:

- Technische Universität Wien, Austria
- Charles University in Prague, Czech Republic
- University of Nancy 2, France
- Universität des Saarlandes, Germany
- Technische Universität Dresden, Germany
- Technische Universität Kaiserslautern, Germany
- University of Malta, Malta
- University of Groningen, The Netherlands
- Universidade Nova de Lisboa, Portugal
- Universidad Politécnica de Madrid, Spain
- Blekinge Tekniska Högskola, Sweden

The European Masters Programme courses are held entirely in English.

Interested candidates are invited to peruse the information on the website of the respective programme (the links can be found at [www.unibz.it/en/inf/progs/mcs/europeanmaster](http://www.unibz.it/en/inf/progs/mcs/europeanmaster) ) or to contact the Administration of the Faculty of

## ACADEMIC CALENDAR 2010/11

|   |                          |
|---|--------------------------|
| Pre-enrolment and submission of Dossier (1 <sup>st</sup> session) | 01.03.2010 - 09.04. 2010 |
| Publication of ranking list (1 <sup>st</sup> session)             | 30.04.2010               |
| Payment of fees pre-enrolled students (1 <sup>st</sup> session)   | by 30.06.2010            |
| Pre-enrolment and submission of Dossier (2 <sup>nd</sup> session) | 12.04.2010 - 20.08.2010  |
| Publication of ranking list (2 <sup>nd</sup> session)             | 10.09.2010               |
| Enrolment (1 <sup>st</sup> and 2 <sup>nd</sup> session)           | by 29.10.2010            |
| <b>Winter term</b>  |                          |
| Beginning of the academic year                                    | 27.09.2010               |
| Christmas holidays  | 24.12.2010 - 09.01.2011  |
| End of the academic term  | 22.01.2011               |
| <b>Summer term</b>  |                          |
| Beginning of the academic term                                    | 21.02.2011               |
| Easter holidays   | 22.04.2011 - 25.04.2011  |
| End of the academic term  | 11.06.2011               |
| <b>Examination sessions</b>                                       |                          |
| Winter  | 24.01.2011 - 19.02.2011  |
| Summer  | 13.06.2011 - 09.07.2011  |
| Autumn  | 29.08.2011 - 30.09.2011  |
| <b>Graduation sessions</b>  |                          |
| Summer  | July 2011                |
| Autumn  | October 2011             |
| Winter  | March 2012               |

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**FURTHER INFORMATION:**

[www.unibz.it](http://www.unibz.it)

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**Advisory Service**

Universitätsplatz/Piazza Università 1  
39100 Bozen/Bolzano  
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fax: +39 0471 012 109  
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**INFOPOINT:**

**Bozen/Bolzano**, Universitätsplatz 1, Piazza Università 1  
Wed, Fri 10:00 - 12:30  
Tue, Thu 14:00 - 16:00  
**Brixen/Bressanone**, Regensburger Allee 16, Viale Ratisbona 16  
Thu 14:00 - 16:00  
and on request

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**Student Secretariat**

Universitätsplatz/Piazza Università 1  
39100 Bozen/Bolzano  
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fax: +39 0471 012 209  
e-mail: [student.secretariat@unibz.it](mailto:student.secretariat@unibz.it)

**Opening hours:**

Mon, Wed and Fri 09:00 - 12:00  
Tue and Thu 14:00 - 16:00

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**Administration of the Faculty of Computer Science**

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First floor, left wing  
39100 Bozen/Bolzano  
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**Opening hours:**

Mon and Wed 10:00 - 12:00  
Tue and Thu 14:00 - 16:00

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**Language Centre**

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fax: +39 0471 012 409  
e-mail: [language.centre@unibz.it](mailto:language.centre@unibz.it)  
[www.unibz.it/language/index.html](http://www.unibz.it/language/index.html)

**Opening hours:**

**Bozen/Bolzano**, Dantestraße 9, Via Dante 9  
Wed, Fri 10:00 - 12:30  
Tue, Thu 14:00 - 16:00  
**Brixen/Bressanone**, Regensburger Allee 16, Viale Ratisbona 16  
Thu 09:00 - 10:00  
(from October to June)

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**Amt für Hochschulförderung, Universität und  
Forschung / Ufficio per il Diritto allo Studio  
universitario, l'Università e la Ricerca scientifica**

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**Opening hours:**

Mon, Tue, Wed, Fri 09:00 - 12:00  
Thu: 08:30 - 13:00/14:00 - 17:30

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**Südtiroler HochschülerInnenschaft / Associazione  
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[www.asus.sh/](http://www.asus.sh/)

**Opening hours:**

Mon to Thu 09:00 - 12:30 and 14:00 – 17:00  
Fri 09:00 - 12:30

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