Study Manifesto

MASTER OF SCIENCE IN COMPUTER SCIENCE

2008/2009 Academic Year

subject to change

12.03.2008

EDUCATIONAL OBJECTIVES AND STUDY REGULATIONS

The objective of the Master of Science in Computer Science is the education of graduates who will:
1. have a thorough knowledge of scientific research methods;
2. 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 elaboration systems;
4. be able to work with a high degree of autonomy, accepting responsibility for projects and structures.

In order to gain the Master's Degree students have to acquire 300 credits, including those already acquired in a first level degree course (Bachelor's Degree) and recognized as valid for the present Master of Science. The course has a duration of two years.

LANGUAGES USED IN TEACHING

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

POSSIBLE CAREER OPPORTUNITIES

Graduates of the MSc in Computer Science will be able to work in the following areas:
*   analysis of complex problems in various application areas;
*   planning and development of high quality information systems;
*   planning of correlated fields to information technology, in industry, the service sector, the environment, health, heritage and public administration.

ADMISSION REQUIREMENTS

For the academic year 2008/2009 the Free University of Bozen - Bolzano set the maximum number of students who can be admitted to the **Master of Science in Computer Science** as follows:

1st session		2nd session		Total	
EU-citizens	non-EU citizens	EU-citizens	non-EU citizens	EU-citizens	non-EU citizens
40	31	5	4	45	35

Concurrent enrolment at several universities or in several courses at the same university is not allowed.

Candidates are eligible to enrol for the MSc if they possess an Italian bachelor degree ("diploma di laurea") or other degrees or qualifications awarded abroad and recognized as equivalent to an Italian bachelor degree.

The maximum number of debits possible for the enrolment to the Master of Science in Computer Science is **30**.

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

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

SELECTION PROCEDURE AND ADMISSION RANKING LIST

The selection procedure consists in the evaluation of a **dossier**, written in English, by an application committee. This dossier must be sent by every student together with their pre-enrolment form. The dossier is composed of 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); the following data must be included, subject to the exclusion from the admission ranking list:
   - Name of degree course;
   - University awarding the qualification;
   - Enrolment date;
   - Legal duration of the degree course;
   - 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 course, 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 application committee not considering in any way the evaluation of the course 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 course in English do not have to submit additional documentation. Otherwise candidates must enclose one of the following:
   - 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 course 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 attesting to language knowledge. Validity will be assessed case by case by the Selection Commission.

   It is 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 that is 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).

PRE-ENROLMENT

There are two pre-enrolment sessions: February – April, June – 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 the student discount for a summer language course.

Nota bene: Those who pre-enrol for the MSc 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). 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:

- **4th April 2008, 12:00 midday. for the 1st session**
- **22th August 2008, 12:00 midday for the 2nd session**

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

The following documents must be enclosed with the pre-enrolment form:
- a passport-size colour photo;
- a photocopy of a valid identity card or passport (front/back);
- the dossier (see section entitled "Selection procedure").

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 course. 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.
Please note that Non EU-citizens resident abroad can apply for one course only!

Candidates with qualifications from abroad must also deliver – at the latest upon enrolment – the **declaration of equivalent value**. This document 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 residence permit for Italy apply directly to the University, as described above.

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) 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.

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

The candidates who have been admitted through the ranking lists will have to pay the first instalment of university fees (€575.00) and deliver the receipt to the Student Secretariat **by 30th June 2008.** Once this receipt has been received, candidates are guaranteed a place on the course. Those who do not pay, or 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 on the waiting list will be able to enrol.

Please note that payment does not allow candidates to get student status, which will be acquired upon enrolment in September. Once the university fees have been paid, there will be no refund.

ENROLMENT

Aspiring students well positioned on the ranking list may enrol for the **Master of Science in Computer Science.** They need to show up in person and submit their application **by 31st October 2008, 12:00 midday** at the Student Secretariat in Bozen - Bolzano.

With the application the following documents must be enclosed:
- receipt of the first payment of university fees (if this was not delivered in June);
- receipt of the provincial tax for the right to study

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 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:
- original secondary school certificate;
- 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.

Candidates who are high enough up the ranking lists to be taken for more than one degree course can only enrol for one of these courses. Once they have enrolled for this course, they lose the right to move up in the ranking lists of other degree courses.

TUITION FEES

Enrolment taxes and fees for the 2008/2009 academic year and the provincial tax for the right to study amount to:
- university fees: **€ 1150.00**
- provincial tax: **€ 129,50**

University fees must be paid in **two instalments**: the first by **30th June 2008 (for pre-enrolled students of the first session) or at the time of enrolment (for pre-enrolled students of the second session), the second by 31st March 2009**.

The payment of the first and second instalment must be effected through postal slip or bank transfer.
The payment of the provincial tax must be effected separately through postal slip in favour of the Autonomous Province of South Tyrol.
Precompiled postal slips are available in the Student secretariat.

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 courses.

Disabled students with a disability up to or exceeding 66% are completely exonerated from paying university fees (except 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 (except the provincial tax).

STUDY GRANTS AND STUDENT ACCOMMODATION

Information regarding student grants, exemption from the payment of university taxes and also 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 following the official terms. The assignment of accommodation in student hostels follows a first-come first-served system.

Address and telephone contact 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 (**4th August - 16th September 2008**) for those students who need to prepare for studying in English, German and Italian. We strongly recommend to enrol 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 **25th July 2008**. In **September 2008** the Language Centre will also be organizing specific **refresher courses** for freshmen. Further information is to be found on the website of the Language Centre.
Registration forms and further information on the language courses are available from the Language Centre during the office hours.

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 view information material and receive information about the Free University of Bozen - Bolzano and its 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 are indicated on the last page of this manifesto.

CURRICULUM

The Master of 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.

One part of the syllabus is fixed and is the same for all the students. This part particularly regards the basic lectures.

The other part of the curriculum allows students to mould their choice of studies to their individual objectives, choosing from among several lectures grouped in four thematic areas ("streams") of computer science.

1st Jahr	
Courses	**Credit Points**
1st Semester	
Advanced Statistics	4
Data Warehousing and Data Mining	8
Programming Languages	4
Software Process Management	8
Theory of Computing	8
2nd Semester	
Advanced Algorithms	4
Advanced Operating Environments	4
Computer Networks	4
Human Computer Interaction	4
Stream: Lecture 1	4
Stream: Lecture 2	4
Stream: Lecture 3	4

2nd Jahr	
Courses	**Credit Points**
3rd Semester	
General Psychology	4
Legal Issues in Computer Science	4
Technical Scientific Communication	4
Stream: Lecture 4	4
Stream: Lecture 5	4
Stream: Lecture 6	4
Stream: Lecture 7	4
Free choice: Lecture or Internship	4
4th Semester	
Thesis	28

Streams

"Streams" offer the opportunity to develop a thorough knowledge of the use of information technologies within a particular sphere. The following streams are offered: "Databases" (DB), "Information and Knowledge Management" (IKM), "Software Engineering" (SE) and "Web Technologies" (WT).

Streams can be subdivided in the following four categories:
- basic lectures (B);
- intermediate lectures (I);
- advanced lectures (A);
- seminars (S).

In order to take basic lectures (B) students have to submit a written request to the Degree Council and to obtain its approval.
Students may choose all their lectures from a single stream, specializing in one thematic area, or they may choose from among different streams: a stream is completed if 4 lectures out of 7 are chosen from one stream.

Students have to choose courses with a total of 28 credits (7 lectures).

The subjects offered for each stream in the 2008/2009 academic year are set out in the following table.

Courses and Activities	Level	Streams				Credit Points
		DB	IKM	SE	WT	
Computer Graphics	B	x				4
Formal Methods	B		x			4
Internet Technologies 2	B	x		x	x	4
Software Architectures	B			x	x	4
Advanced Software Engineering Methodology	I			x		4
Advanced Software Engineering Project	I			x		4
Advanced Topics in Information Systems	I	x	x		x	4
Approximation: Theory and Algorithms	I	x				4
Component-Based Development	I			x	x	4
Computational Linguistics	I		x		x	4
Computational Logic	I		x			4
Digital Libraries	I	x	x		x	4
Distributed Databases	I	x	x		x	4
Introduction to Artificial Intelligence	I	x	x			4
Introduction to Linguistics	I		x			4
Knowledge Representation	I	x	x		x	4
Machine Learning: Algorithms and Applications	I	x				4
Object Oriented Analysis and Design	I		x	x		4
Open Source Software Engineering	I			x		4
Software Engineering 2	I			x	x	4
Software Evolution	I	x		x		4
Software Engineering in Video Games	I			x		4
Software Metrics	I			x		4
Software Quality Management	I			x		4
XML and Semistructured Databases	I	x	x		x	4
Advanced Web Programming	I	x		x	x	4
Advanced Topics in Databases	A	x	x			4
Cross-Language Information Technologies	A		x			4
Foundations of Databases	A	x	x			4
Information Integration	A	x	x			4
Knowledge Bases and Databases	A		x		x	4
Mobile Services	A	x		x	x	4
Non-classical Logics	A		x			4
Requirement Engineering	A			x		4
Semantic Web Technologies	A		x		x	4
Software Testing	A			x		4
Temporal and Spatial Databases	A	x			x	4
Text Processing	A		x			4
Seminar in Databases	S	x				4
Seminar in Software Engineering	S			x		4

Internship

Students may choose an internship to acquire the four free choice credits. Internships provide an important opportunity for putting into practice the theoretical knowledge they have acquired during their studies and for establishing or strengthening their contacts with future employers. They are planned for the second year of the course. The internship may be carried out in any enterprise, whether public or private, or at the Faculty. 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 of Science 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.

Teaching and learning activities

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

- **Lectures**: regular meetings with the students where the lecturer teaches the subject matter of the course syllabus.
- **Exercise and practice sessions**: revision of the contents of the syllabus, including the teaching of precise facts, with active student participation.
- **Projects**: transmission of core knowledge through lectures and individual study, and development of a software product in which the acquired theoretical knowledge is directly applied. The students have give account on their work, the results reached, the applied methodologies and the theoretical foundations in written form and/or orally.
- **Internship**: practical work that the students do in a firm, an external institution or at the Faculty. The students will have to write reports and/or do oral presentations about their projects.

European Masters Programs

The Faculty of Computer Science offers further courses of specialisation: the European Masters Programs.
All European Masters Programs running in the academic year 2008/2009 have been chosen as Erasmus Mundus Programs by the European Union.

The programs are:
- European Masters Program in Computational Logic;
- European Masters Program in Language and Communication Technologies;
- European Masters Program in Software Engineering.

The European Masters Programs 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 revaluation g 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 programs;
- 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 Programs are different to normal courses in three ways:
- The European Masters Programs 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 Program 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 Program;
- At the end of the degree, students receive three qualifications: the MSc in Computer Science 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 Program degree.

Amongst the **Partner Universities** of the European Masters Programs of the Faculty of Computer Science there are:
- Copenhagen Business School, Denmark
- Roskilde University, Denmark
- Universität des Saarlandes, Germany
- Technische Universität Dresden, Germany
- Technische Universität Kaiserslautern, Germany
- Université Henri Poincaré, France
- Université Nancy 2, France
- University of Amsterdam, The Netherlands
- University of Groningen, The Netherlands

- Utrecht University, The Netherlands
- Università degli Studi di Trento, Italy
- University of Malta, Malta
- Leopold-Franzens-Universität Innsbruck, Austria
- Technische Universität Wien, Austria
- Universidade Nova de Lisboa, Portugal
- Blekinge Tekniska Högskola, Sweden
- Universidad Politecnica de Madrid, Spain
- Charles University in Prague, Czech Republic

Just like all our other courses, all the European Masters Program courses are held in English.

Interested candidates are invited to peruse the information on the website of the respective program (the links can be found at http://www.unibz.it/inf/em/index.html) or to contact the Administration of the Faculty of Computer Science.

CALENDAR

Pre-enrolment and submission of Dossier (1st session)	**18/02 – 04/04/2008**
Publication of ranking list (1st session)	**05/05/2008**
Payment of fees pre-enrolled students (1st session)	**by 30/06/2008**
Pre-enrolment and submission of Dossier (2nd session)	**03/06 - 22/08/2008**
Publication of ranking list (2nd session)	**08/09/2008**
Enrolment	**by 31/10/2008**
Enrolment after the first year	**by 24/10/2008**

1st Semester	
Beginning of the academic year	**29/09/2008**
Christmas holidays	**24/12/08 - 06/01/2009**
End of the academic term	**24/01/2009**
2nd Semester	
Beginning of the academic term	**23/02/2009**
Easter holidays	**10/04 - 13/04/2009**
End of the academic year	**13/06/2009**
Examination sessions	
Winter	**26/01 - 21/02/2009**
Summer	**15/06 - 11/07/2009**
Autumn	**29/08 - 29/09/2009**
Graduation sessions	
Summer	**July 2009**
Autumn	**October 2009**
Winter	**March 2010**

FURTHER INFORMATION:

www.unibz.it

Advisory Service tel.: +39 0471 012 100 fax: +39 0471 012 109 e-mail: info@unibz.it	<u>INFOPOINT</u>: **Bozen/Bolzano, Sernesistraße 1, Via Sernesi 1** Wed, Fri 10:00 - 12:30 Tue, Thu 14:00 - 16:00 **Brixen/Bressanone, Bahnofstraße 16, Via Stazione 16** Mon, Thu 14:00 - 16:00 Tue, Thu (only June to October) 09:00 – 12:00
Student Secretariat Sernesistraße/Via Sernesi 1 39100 Bozen/Bolzano tel.: +39 0471 012 200 fax: +39 0471 012 209 e-mail: student.secretariat@unibz.it	<u>Opening hours</u>: Mon, Wed, Fri 09:00 - 12:00 Tue, Thu 14:00 - 16:00
Administrative Secretariat of the Faculty of Computer Science Dominikanerplatz/Piazza Domenicani, 3 39100 Bozen/Bolzano tel.: +39 0471 016 004 / 016 005 fax: +39 0471 016 009 e-mail: computer.science@unibz.it	<u>Opening hours</u>: Mon, Wed, Fri 09:00 - 12:00 Tue, Thu 14:00 - 17:00
Language Centre Dantestraße/Via Dante 9 39100 Bozen/Bolzano tel.: +39 0471 012 400 fax: +39 0471 012 409 e-mail: language.centre@unibz.it www.unibz.it/language/index.html	<u>Opening hours</u>: Mon - Fr 14:30 - 17:00
Amt für Hochschulförderung, Universität und Forschung / Ufficio per il Diritto allo Studio universitario, l'Università e la Ricerca scientifica Andreas-Hofer-Straße /Via Andreas Hofer, 18 39100 Bozen/Bolzano tel.: +39 0471 413 304 fax: +39 0471 413 388 www.provinz.bz.it/bildungsfoerderung	<u>Opening hours</u>: Mon, Tue, Wed, Fri 09:00 - 12:00 Thu: 08:30 - 13:00/14:00 - 17:30