Informatik
Schnittstelle Zukunft

JOHANNES KEPLER
UNIVERSITÄT LINZ
Netzwerk für Forschung, Lehre und Praxis

Curriculum of the Master Studies

COMPUTER SCIENCE (921)
NETWORKS AND SECURITY (911)
PERVASIVE COMPUTING (938)
SOFTWARE ENGINEERING (937)

at the Faculty of Technical and Natural Sciences
of the Johannes Kepler University Linz

(valid from winter semester 2007/2008)

Contents

§1 Qualification Profile

In the area of computer science the Johannes Kepler University Linz offers four master studies: *Computer Science*, *Networks and Security*, *Pervasive Computing* and *Software Engineering*. These studies have the same regular structure but differ in their focus by providing special major and minor subjects. Therefore, the qualification profile consists of a general part, which is identical for all four master studies, and a specific part, which describes the qualifications resulting from the major subject of each master study.

General profile

Computer Science deals with concepts, methods and tools for systematic and automated information processing. It has its roots in mathematics and electrical engineering but has become a scientific discipline in its own right during the last decades. Today it permeates business and technology as well as almost every aspect of our daily life.

The master studies of this curriculum aim at problem solving skills. Based on the bachelor study of Computer Science in Linz, in which the foundations of the discipline are laid, the master studies offer a research-oriented specialisation in selected and current fields of computer science. Graduates are experts in their area. They have a profound IT background and are able to solve complex IT problems using scientific methods.

Computer Science in Linz is an application-oriented engineering discipline, in which theory and practice are equally important. In addition to technical contents the educational goals of the curriculum are: proficiency in scientific methods, creativity, multidisciplinarity, team spirit, social skills, leadership and readiness for life-long learning.

The master studies of this curriculum emphasize internationality. This is achieved by many courses and project work being done in English (the master study Pervasive Computing is completely in English), as well as by promoting exchange students and English-speaking guest lecturers.

Master study Computer Science

The master study Computer Science offers a broad specialisation in major fields of computer science. In analogy to the bachelor study of Computer Science these areas are: formal methods of computer science, hardware design, software development, IT systems as well as application-oriented areas such as knowledge-based systems and grid computing. The goal of this master study is to deepen and broaden the general computer science background of the students. This gives graduates particularly good chances on the job market.

Master study Pervasive Computing

The design of miniaturised systems, which are invisibly integrated in their environment and are connected in a spontaneous and wireless way require special computer science methods. The master study Pervasive Computing therefore deals with a combination of technologies (e.g., sensors, actuators, wireless communication, miniaturized memories and processors), paradigms (e.g., context-aware and adaptive systems, autonomous and self-organizing systems, organic and bio-inspired systems) and methods (e.g., for interaction, coordination, computational perception, reasoning and learning, artificial intelligence, virtual reality, semantic interoperability, system reliability, security and user friendliness). The educational goals are decision and evaluation skills as well as skills for designing and developing pervasive computing systems such as "information appliances", "wearable systems" or "ambient intelligence systems".

Master study Networks and Security

The protection of IT systems against internal or external attacks is a strategically important task in the planning and operation of such systems. Industry and economy need more security experts with a profound knowledge in computer science and networks. Important aspects in the application of security measures are the systematic configuration and monitoring of IT infrastructures. Graduates of this master study have broad job opportunities ranging from the design and implementation of security strategies, the administration of systems, networks and security policies, the application of cryptographic techniques as well as legal consulting in security areas. The profound technical education of this study also allows a career in research and development.

Master study Software Engineering

Economy and Industry have a great demand for well-trained software engineers who are able to manage large software projects, to apply cutting-edge software development techniques as well as to understand and to direct all phases of the software development process. The master study Software Engineering aims at producing such experts. It covers formal foundations as well as methods and tools for all project phases, such as requirements engineering, system modelling, architectural design, implementation, testing, deployment and maintenance of software systems. The focus is on scientific methods and their application to build high-quality software in an economic way. Most computer science graduates go into software development, therefore this master study offers an ideal preparation for their professional career.

§2 Overview

(1) Structure of the Curriculum

The master studies of this curriculum have the same modular and regular structure. Each of them takes 4 semesters and comprises 120 ECTS credits. Table 1 shows the structure of the master studies, their portion of compulsory and optional courses as well as their required amounts of ECTS credits and units per week (1 unit is 45 minutes).

Table 1: *Structure of the master studies in the area of computer science*

	ECTS	units
Major subject		
Compulsory courses	37.5	25
Minor subject		
Optional courses	18.0	12
Electives		
Computer science elective	9.0	6
Free elective	9.0	6
Master thesis seminars	12.0	6
Master thesis	30.0	
Master examination	4.5	
Total	120.0	55

The *major subject* is the core of each master study and consists of those courses that are characteristic for this study.

The *minor subject* gives students a second area of competence. It consists of courses that must be selected from the major subject of a particular other master study of this curriculum.

The *electives* consist of a computer science elective and a free elective. The courses of the computer science elective must be selected from a catalogue that is common to all master studies of this curriculum. They give students a chance to extend their computer science knowledge beyond the major and minor

subjects. The free elective courses can be chosen from all studies at any university. They give students the opportunity to educate their personality and to acquire skills beyond computer science.

The *master thesis seminars* serve to prepare and guide the composition of the master thesis. These seminars are compulsory courses.

The *master thesis* is the final project in every master study. It is a scientific work, in which the knowledge and skills obtained during the study should be applied.

(2) Admission

Admission to any of the master studies of this curriculum requires a bachelor degree in Computer Science from the Johannes Kepler University Linz or an equivalent degree from some other university.

In addition to that, the following rules apply:

1. Graduates of the bachelor study "Wirtschaftsinformatik" at the Johannes Kepler University Linz are admitted to the master study Software Engineering.
2. Graduates of the bachelor studies "Mechatronik" and "Informationselektronik" at the Johannes Kepler University Linz are admitted to the master study Pervasive Computing.
3. Graduates of the bachelor studies "Mechatronik", "Informationselektronik", "Technische Mathematik" and "Wirtschaftsinformatik" at the Johannes Kepler University Linz as well as graduates of Computer-Science-related studies at other universities are admitted to any of the master studies of this curriculum. However, in this case the minor subject must be replaced by bridge courses as described in §7.

The equivalence as well as the Computer-Science-relatedness of foreign degrees is decided by the vice rector of studies at the Johannes Kepler University Linz.

(3) Combination of Master Studies

Students may obtain degrees in multiple master studies of this curriculum, but the major subject of a completed master study must not be selected as the minor subject of another master study. Courses of the computer science elective (§6(1)), which have been selected in one master study must not be re-selected for another master study.

§3 General Regulations and Terms

(1) Course Types

Lectures ("Vorlesungen", VO) are courses that introduce students to certain areas and methods of their study.

Exercises ("Übungen", UE) are courses which reinforce topics from the corresponding lecture by carrying out practical and concrete exercises. Marking is based on continuous assessment of the students' work.

Combined courses ("Kombinierte Veranstaltungen", KV) are courses consisting of lectures and exercises, which are intertwined according to didactic aspects.

Practicals (PR) have similar goals as exercises and are continuously assessed. In contrast to exercises they can be independent from lectures and usually promote project-oriented work in a team.

Seminars (SE) are courses involving collaboration between students. Marking of seminars is based on continuous assessment of the students' work, on their preparation of talks (including seminar papers) and on their participation in discussions.

Master thesis seminars (SE) are seminars which prepare students for writing their master thesis.

The courses of this curriculum can be taught in English and can make use of e-learning techniques.

(2) ECTS Credits

According to the *European Credit Transfer System* (ECTS) the effort of the studies has to be specified in ECTS credits, where 1 ECTS credit corresponds to 25 full hours of work (§51(2)26 UG). This includes the attendance time in courses as well as the time for preparation, exercises and practical work at home. The total effort of every master study is 120 ECTS credits (approximately 30 ECTS credits per semester).

In this curriculum 1 unit generally corresponds to 1.5 ECTS credits with the exception of the two master thesis seminars, which have 6 ECTS credits each. The master thesis is worth 30 ECTS credits and the master examination 4.5 ECTS credits.

Lecturers have to adjust the effort of every course in such a way that it matches the ECTS credits of the course. Table 2 shows the expected work load (in full hours) for different amounts of units and ECTS credits.

Table 2: *Correspondence between units, ECTS credits and full hours*

units	ECTS	full hours
1	1.5	37.5
2	3.0	75.0
3	4.5	112.5
4	6.0	150.0
5	7.5	187.5

(3) Number of Students per Course and Course Admission

In the courses of the major subjects 35 students are admitted to exercises and to the exercise part of combined courses, 15 students are admitted to practicals, and 20 students to seminars. The vice rector of studies and the curriculum committee have to make sure that enough parallel courses are offered. Electives do not have parallel courses.

In courses with a limit on the number of students the admission is done according to the direct assignment policy (*Direktzuteilungsverfahren*).

§4 Major Subject

In the major subject of every master study students have to take the compulsory courses described in Table 3 corresponding to 37.5 ECTS credits (25 units).

Table 3: *Compulsory courses of every master study (WS = winter semester, SS = summer semester)*

Compulsory courses	VO	UE	KV	PR	SE	ECTS	WS/SS
Master study Computer Science							
Model Checking	2	1	.	.	.	4.5	WS
Software Architectures	.	.	3	.	.	4.5	WS
Foundations of Grid Computing	2	1	.	.	.	4.5	WS
Hardware Design	2	1	.	.	.	4.5	SS
Cooperative Systems	2	1	.	.	.	4.5	SS
Knowledge-centered Systems	.	.	3	.	.	4.5	SS
Practical in Computer Science	.	.	.	5	.	7.5	SS
Seminar in Computer Science: ...	.	.	.	.	2	3.0	WS
Master Study Networks and Security							
Introduction to IT Security	3	.	.	.	.	4.5	WS
IT Law and Computer Forensics	2	.	.	.	.	3.0	WS
System Administration	.	.	2	.	.	3.0	WS
Foundations of Grid Computing	2	1	.	.	.	4.5	WS
Network Management	.	.	3	.	.	4.5	SS
Cryptography	.	.	3	.	.	4.5	SS
Security Models in Information Systems	.	.	2	.	.	3.0	SS
Practical in Networks and Security	.	.	.	5	.	7.5	SS
Seminar in Networks and Security: ...	.	.	.	.	2	3.0	WS
Master study Pervasive Computing							
Pervasive Computing Infrastructure	2	1	.	.	.	4.5	WS
Pervasive Computing Systems Development	2	1	.	.	.	4.5	WS
Unconventional User Interaction	2	1	.	.	.	4.5	WS
Machine Learning and Pattern Classification	.	.	3	.	.	4.5	SS
Cooperative Systems	2	1	.	.	.	4.5	SS
Mixed Reality Systems	.	.	3	.	.	4.5	SS
Practical in Pervasive Computing	.	.	.	5	.	7.5	SS
Seminar in Pervasive Computing: ...	.	.	.	.	2	3.0	WS
Master study Software Engineering							
Formal Methods in Software Development	.	.	3	.	.	4.5	WS
Requirements Engineering	.	.	2	.	.	3.0	WS
Software Architectures	.	.	3	.	.	4.5	WS
Principles of Programming Languages	.	.	3	.	.	4.5	WS
Testing of Software Systems	.	.	2	.	.	3.0	SS
Knowledge-centered Systems	.	.	3	.	.	4.5	SS
Software Processes and Tools	.	.	2	.	.	3.0	SS
Practical in Software Engineering	.	.	.	5	.	7.5	SS
Seminar in Software Engineering: ...	.	.	.	.	2	3.0	WS

Contents of the Major Subjects

Master study Computer Science: Profound specialisation in major topics of computer science, including formal foundations (software verification and model checking), hardware design (development of digital hardware), software development (object-oriented and component-based architectures, layered and distributed architectures), distributed and cooperating IT systems (middleware technologies, coordination models, protocols, techniques and applications of wireless communication) as well as a selection of modern IT technologies and applications (grid computing, information systems, knowledge-based systems).

Master study Pervasive Computing: A system-oriented part teaches the basic infrastructure for pervasive computing (identification, localisation, context-awareness, activity recognition, spontaneous interaction, mobile ad-hoc networks, sensor/actuator systems) as well as fundamental paradigms and implementation techniques in combination with artificial intelligence methods. The course on cooperative systems teaches methods for interaction, communication and coordination. The courses on unconventional user interaction and mixed reality systems convey techniques of human-machine interaction (embedded interaction, tangible user interfaces, augmented and virtual reality) as well as forms of explicit and implicit interactions between physical reality and digital computer systems.

Master study Networks and Security: Mathematical and technical topics (e.g. cryptography), architecture and components of secure network infrastructures (e.g., servers, routers, switches, firewalls, intrusion detection systems) as well as techniques for planning, configuration and operation of such systems. Further topics are the detection and defence of malware, vulnerability tests as well as redundancy in the organisation of network services. Finally, the courses of this study also deal with legal aspects of networks as well as with computer forensics and security-related topics in databases.

Master study Software Engineering: Application of scientific methods for the specification, development and maintenance of large software systems. In addition to formal aspects (specification, analysis and verification of software) this master study deals with requirements engineering techniques, with architectural design (object-oriented and component-based architectures, layered and distributed architectures), with software testing as well as with the application of information systems and knowledge-based techniques in software engineering. Further topics are programming paradigms (imperative, functional, declarative), software process models (waterfall model, spiral model, prototyping, agile methods) as well as software engineering tools.

Practical and Seminar

The major subject of every master study contains a practical with 7.5 ECTS credits (5 units) and a seminar with 3 ECTS credits (2 units). The practical serves as a consolidation and a practical application of the knowledge conveyed in the other courses of the major subject. It should be organised as a team work. The seminar should rehearse scientific working principles. Its name is "Seminar in *M*" (where *M* is the name of the master study) with an appropriate subtitle denoting the topic of the seminar. The seminar is part of the seminar catalogue in Table 6.

§5 Minor Subject

The minor subject gives students a second area of competence (beside the major subject) offering a specialisation in one of the main areas of computer science.

In the minor subject students have to select courses from the major subject of a specific other master study of this curriculum with a total of 18 ECTS credits (12 units). The selected courses must not include the practical. If a major subject does not contain enough choices (e.g., because some courses of this subject are also part of the own major subject or have already been selected as a free elective in the bachelor study) students have to take courses of the kind "Special Topics in *M*" (Table 5) or "Seminar in *M*" (Table 6), where *M* denotes the master study of the selected minor subject.

§6 Electives

Electives allow students to deepen and broaden their knowledge according to their individual preferences. The electives consist of a *Computer Science Elective* with courses from the whole area of Computer Science and a *Free Elective* with courses that can be chosen from any study at any university. Courses that were already taken in the bachelor study cannot be re-selected in the electives of the master studies.

(1) Computer Science Elective

In the Computer Science Elective students have to select courses with a total of 9 ECTS credits (6 units) from Table 4, 5 or 6.

a) General Elective Courses

These courses (see Table 4) have a fixed name and a fixed amount of ECTS credits and units.

Table 4: *General elective courses*

Courses	VO	UE	KV	PR	SE	ECTS	Institute
Advanced Model Checking	2	.	.	.	.	3.0	FMV
Agile Methods in Software Development	.	.	2	.	.	3.0	SEA
Applied Knowledge Processing	2	.	.	.	.	3.0	FAW
Accessible System Design	.	.	2	.	.	.	IIS
Biometric Identification	2	.	.	.	.	3.0	CP
Data Modelling and Application Development	.	.	2	.	.	3.0	FAW
Debugging	2	.	.	.	.	3.0	FMV
Digital Image Processing	.	.	2	.	.	3.0	CP
Digital Speech Processing	.	.	2	.	.	3.0	CP
E-Government	.	.	2	.	.	3.0	IWV
Embedded Systems	.	.	2	.	.	3.0	PC
Engineering of Software-intensive Systems	.	.	2	.	.	3.0	SEA
Integrated Circuit Design	.	.	.	2	.	3.0	RIIC
Gender and IT?	.	.	.	.	2	3.0	FGF
HW Development w. Programmable Logic Devices	.	.	2	.	.	3.0	RIIC
Hardware-oriented Work on PCs	.	.	.	2	.	3.0	FIM
Capacity Planning	.	.	2	.	.	3.0	TK
Conceptual Data Modelling	.	.	2	.	.	3.0	FAW
Logic Programming	.	.	2	.	.	3.0	RISC
Human-Computer Interaction	2	.	.	.	.	3.0	PC
Mobile Computing	.	.	2	.	.	3.0	TK
Model Engineering	2	.	1	.	.	4.5	BIO
Modelling Internet Applications	.	.	2	.	.	3.0	TK
Parallel Computer Graphics	2	1	.	.	.	4.5	GUP
Product Line Engineering	.	.	2	.	.	3.0	SEA
Programming in the Grid	.	.	2	.	.	3.0	GUP
Real-Time Systems	.	.	2	.	.	3.0	PC
Rewriting in Logic and Computer Science	2	.	.	.	.	3.0	RISC
Secure Code	.	.	1	.	.	1.5	FIM
Sensor Networks	.	.	2	.	.	3.0	PC
Security in Application Protocols	.	.	1	.	.	1.5	FIM
Software Development for Parallel Systems	2	1	.	.	.	4.5	GUP
Statistics 2	.	.	2	.	.	3.0	GUP
System Software	.	.	2	.	.	3.0	SSW
Technics and Gender	.	.	2	.	.	3.0	FGF
Theoretical Concepts of Machine Learning	2	1	.	.	.	4.5	BIO

Compiler Construction 2	.	.	2	.	.	3.0	SSW
VLSI Design	.	.	2	.	.	3.0	RIIC
Web Engineering	.	.	2	.	.	3.0	FAW
Web Information Retrieval	.	.	2	.	.	3.0	FAW
Wireless LANs	.	.	1	.	.	1.5	FIM

b) Special Topics

Special topics courses allow the institutes to take up current trends in their fields and to use the teaching offer of incoming lecturers. The name of such courses consists of a main title as shown in Table 5 and a subtitle denoting the actual contents of the course. The type of such courses (VO, UE, KV, PR) as well as their length in units can be freely chosen by the lecturers. The ECTS credits are calculated as units × 1.5.

Table 5: *Special topics*

Courses	VO	UE	KV	PR	ECTS
Special Topics in Computer Science: ...	*	*	*	*	* × 1.5
Special Topics in Networks and Security: ...	*	*	*	*	* × 1.5
Special Topics in Pervasive Computing: ...	*	*	*	*	* × 1.5
Special Topics in Software Engineering: ...	*	*	*	*	* × 1.5

c) Seminars

The name of a seminar consists of a main title as shown in Table 6 and a subtitle denoting the topic of the seminar.

Table 6: *Seminars*

Courses	SE	ECTS
Seminar in Computer Science: ...	2	3.0
Seminar in Networks and Security: ...	2	3.0
Seminar in Pervasive Computing: ...	2	3.0
Seminar in Software Engineering: ...	2	3.0

(2) Free Elective

Students have to take free elective courses with a total of 9 ECTS credits (6 units). These courses can be selected from any study at any university and can be taken throughout the whole master study. Their goal is to provide students with additional skills beyond the area of computer science.

In view of the qualification profile the following areas are especially recommended as free elective courses:

- Courses in the area of gender studies (e.g. from the "Institut für Frauen- und Geschlechterforschung" at the Johannes Kepler University Linz).
- Courses about social skills (e.g. from the "Interdisziplinäres Zentrum für Soziale Kompetenz" at the Johannes Kepler University).
- Courses in the area of economy and law (e.g. from the Faculty of Social Sciences and Economy and the Faculty of Law at the Johannes Kepler University Linz).
- Foreign language courses (e.g. from the department "Fachsprachen" of the "Institut für Internationales Management" at the Johannes Kepler University Linz).

§7 Bridge Courses

(1) For Graduates of Bachelor Studies at the JKU

Graduates of the bachelor studies *Mechatronik*, *Informationselektronik*, *Technische Mathematik* and *Wirtschaftsinformatik* at the Johannes Kepler University Linz are admitted to all master studies of this curriculum. However, if not stated otherwise in §2(2), they have to substitute the minor subject by bridge courses with a total of 18 ECTS credits (12 units) according to Table 7. The goal of the bridge courses is to recapitulate or catch up missing foundations in Computer Science.

Table 7: *Required bridge courses*

for graduates of the bachelor study ...	VO	UE	KV	PR	ECTS	WS/SS
Mechatronik						
Discrete Structures	1	.	.	.	1.5	WS
Information Systems 1	2	2	.	.	6.0	WS
Formal Models	2	1	.	.	4.5	SS
Software Development 2	2	2	.	.	6.0	SS
Informationselektronik						
Operating Systems	2	.	.	.	3.0	WS
Information Systems 1	2	2	.	.	6.0	WS
Networks and Distributed Systems	2	1	.	.	4.5	SS
Multimedia Systems	2	1	.	.	4.5	SS
Technische Mathematik						
Computer Architecture 1	3	1	.	.	6.0	WS
Operating Systems	2	.	.	.	3.0	WS
Networks and Distributed Systems	2	1	.	.	4.5	SS
Multimedia Systems	2	1	.	.	4.5	SS
Wirtschaftsinformatik						
Digital Circuits	2	.	.	.	3.0	WS
Computer Architecture 1	3	1	.	.	6.0	WS
Formal Models	2	1	.	.	4.5	SS
Networks and Distributed Systems	2	1	.	.	4.5	SS

If any of the courses listed in Table 7 have already been taken as elective courses in the bachelor study, they have to be substituted by courses with the same ECTS credits from Table 8.

Table 8: *Alternative bridge courses*

Courses	VO	UE	KV	PR	ECTS	WS/SS
Discrete Structures	1	.	.	.	1.5	WS
Formal Models	2	1	.	.	4.5	SS
Computer Architecture 1	3	1	.	.	6.0	WS
Software Development 2	2	2	.	.	6.0	SS
Practical Software Development 2		.	.	2	3.0	SS
Algorithms and Data Structures 2	2	1	.	.	4.5	WS
Software Engineering	2	1	.	.	4.5	WS
Operating Systems	2	.	.	.	3.0	WS
Operating Systems Practical	.	.	.	1	1.5	WS
Networks and Distributes Systems	2	1	.	.	4.5	SS
Information Systems 1	2	2	.	.	6.0	WS
Multimedia Systems	2	1	.	.	4.5	SS
Embedded and Pervasive Systems	2	1	.	.	4.5	SS

(2) For Graduates of Other Computer-Science-related Bachelor Studies

Graduates of computer-science-related bachelor studies at other universities are admitted to all master studies of this curriculum. However, instead of the minor subject they have to take bridge courses with a total of 18 ECTS credits (12 units). Whether a bachelor study is sufficiently computer-science-related is decided by the vice rector of studies. The vice rector also determines the bridge courses that have to be taken with respect to the bachelor curriculum of the graduate.

§8 Master Thesis

(1) Goals and Effort

As a final project master students have to write a master thesis. The topic of the master thesis must be chosen from the major subject of their master study. The goal of the master thesis is to demonstrate that students are able to solve a non-trivial problem in the area of their master study using scientific methods and latest technology. Institutes have to adjust the effort of a master thesis so that it corresponds to 30 ECTS credits.

(2) Master Thesis Seminars

As a preparation and a guidance for the master thesis students have to take the two master seminars from Table 9.

Table 9: *Master thesis seminars*

Courses	Type	units	ECTS
Master Thesis Seminar WS	SE	3	6.0
Master Thesis Seminar SS	SE	3	6.0

§9 Examinations

A master study of this curriculum is completed if all examinations for the courses described in §4 to §8, the master thesis and the master examination have been passed successfully.

(1) Course Examinations

The examination mode (written or oral) for lectures (VO) and for the exercise part of combined courses (KV) can be defined by the lecturer. Exercises (UE) and practicals (PR) are assessed by continuous and final evaluations. Seminars (SE) are assessed on the basis of the seminar paper, the seminar presentation and the cooperation of the student in the seminar.

(2) Master Examination

The master examination is assessed by a committee of three professors. It is the final examination of the master study and consists of the following three parts:

- *Master thesis defence*, assessed by the head of the examination committee.
- *Examination about the major subject*, assessed by an examiner representing the major subject.
- *Examination about the minor subject*, assessed by an examiner representing the minor subject.

The contents of the examination about the major and the minor subject is the contents of the courses in these areas including the attended elective courses that are related to them. If a student took bridge courses instead of the minor subject the examination about the minor subject is replaced with an examination about the bridge courses. The effort of the master examination is calculated with 4.5 ECTS credits.

§10 Academic Degree

Graduates of a master study of this curriculum are awarded the academic degree "Diplom-Ingenieurin" or "Diplom-Ingenieur" (abbreviated Dipl.-Ing. or DI)[1].

§11 Commencement

This curriculum comes into effect on October 1, 2007.

§12 Regulations for Students Converting to this Curriculum

In this section the curricula that were in effect on October 1, 2007 are distinguished by the year of their commencement. Students must submit any credit transfer requests resulting from the following regulations during the first semester of their master study.

(1) Converting from the Diploma Curriculum 1999

Students who were studying according to the diploma curriculum 1999 on October 1, 2007 are allowed to finish this study until September 30, 2008. If they have not finished their study until then or if they decide to convert to the new curriculum voluntarily, the following regulations hold:

a. If they have passed all examinations of the diploma curriculum 1999 with the exception of the diploma seminars, the diploma thesis and the final diploma examination, they are awarded a bachelor degree in Computer Science and are subjected to the master study Computer Science of the master curriculum 2007. In order to finish this study they only have to pass the master seminars, the master thesis and the master examination.

b. Otherwise they are subjected to the bachelor curriculum 2007, where the credit transfer regulations specified there apply. Examinations for courses beyond the bachelor study are accepted for the master study Computer Science under the premises of §12(4). The project practical (10 units) is accepted as a bachelor thesis and as a "Practical in Computer Science".

(2) Converting from the Master Curriculum 2002

Students who were studying according to the master curriculum 2002 on October 1, 2007 are allowed to finish this study until February 28, 2010. If they have not finished their study until then they are subjected to the master study Computer Science of the master curriculum 2007. The following regulations apply:

a. If they have passed all examinations of the master curriculum 2002 with the exception of the master seminars, the master thesis and the second part of the master examination, they only have to pass the master seminars, the master thesis and the master examination of the master curriculum 2007.

b. If they have passed all courses of Table 5 of the master curriculum 2002, these courses are accepted as the compulsory courses of the master study Computer Science with the exception of the "Seminar in Computer Science" and the "Practical in Computer Science".

c. If they have passed at least 12 units of the courses of Table 5 required for the master curriculum 2002, these courses can be accepted for the minor subject in Computer Science (unless item b applies).

d. Otherwise they have to take all the courses required in the master curriculum 2007. Equivalent courses according to §12(4) that were already passed in the master curriculum 2002 are accepted for the master curriculum 2007.

e. The project practical (10 units) of the master curriculum 2002 is accepted as a "Practical in Computer Science".

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[1] This corresponds to the international academic degree "Master of Science" (MSc).

Students of the master curriculum 2002 can convert to the master curriculum 2007 voluntarily. In this case they have to pass all courses of the master curriculum 2007. The credit transfer regulations described in items a-e apply.

(3) Starting a Master Study after Graduating from the Bachelor Curriculum 2002

Graduates of the bachelor curriculum 2002 can start a master study of the master curriculum 2007. Courses of the major and minor subjects of the master curriculum 2007 that were already taken in the bachelor study (e.g. courses that are equivalent according to §12(4)) have to be substituted by equally-valued courses of the kind "Special Topics in *M*" or "Seminar in *M*", where *M* is the name of the major or minor subject into which the substituted course falls.

Courses from Table 5 of the master curriculum 2002, which were taken before winter semester 2007/08 and were passed before March 1, 2008 can be accepted as courses of the major or minor subject of the master study Computer Science. The project practical (10 units) of the master curriculum 2002 is accepted as a "Practical in Computer Science".

(4) Equivalent Courses

Courses of the master curriculum 2002 or the diploma curriculum 1999 are equivalent to courses of the master curriculum 2007 if they have the same name or if they are listed in Table 10.

Table 10: *Equivalent courses*

Courses of the curricula 1999 and 2002	Courses of the curriculum 2007
Information Systems 3	Security Models in Information Systems.
Mathematical Logic and Logic-oriented Progr. Lang.	Logic Programming
Network Administration	System Administration
System Theory 1	Model Checking
Software Engineering 2	Software Architectures
Telecooperation	Cooperative Systems
Telemedia 2	Capacity Planning
Simulation of Technical Systems	Real-Time Systems