UNIVERSITÄT PASSAU

Faculty of Computer Science and Mathematics

Subject-specific study and examination regulations for the M.Sc. Computer Science degree programme

of 27 April 2016

Important notice: Only the German text, as published in the official law gazette, is legally binding. This English version is only intended to aid your understanding and does not have legal force. In the event of discrepancies between the English and German wording, the German wording shall prevail.

Subject-specific study and examination regulations for the degree programme in Computer Science culminating in the Master of Science degree at the University of Passau

of 27 April 2016

On the basis of art. 13 sec. 1 clause 2 in conjunction with art. 43 sec. 5 clause 2, art. 58 sec. 1 clause 1 and art. 61 sec. 2 clause 1 of the Bavarian Higher Education Act (Bayerisches Hochschulgesetz; BayHSchG), the University of Passau lays down the following by-laws:

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§ 1 Scope

[1]The present subject-specific study and examination regulations (FStuPO) supplement the general study and examination regulations (AStuPO) for degree programmes culminating in the qualification Master of Science of the Faculty of Computer Science and Mathematics at the University of Passau, as amended. [2]In the event that a provision contained herein is incompatible with a provision in the general study and examination regulations (AStuPO), the provision of the general study and examination regulations (AStuPO) shall prevail.

§ 2 Aim of the qualification and examination objectives

(1) The degree programme in Computer Science, which culminates in the degree Master of Science, is offered by the Faculty of Computer Science and Mathematics at the University of Passau.

(2) [1]Computer Science is one of the driving forces behind technological innovation in all areas of business and private life. [2]In view of the constant advances and expansion in information and communication technology, and the associated expectations regarding performance, flexibility and ease-of-use, the scope of potential disciplines for computer scientists continues to grow, and is in a constant state of flux. [3]Computer scientists can enjoy the prospect of a versatile, attractive career covering a range of sophisticated disciplines including industry, commerce, insurance, services, management consulting, public administration and, last but not least, scientific research. [4]The consecutive bachelor's and master's degree programmes of Computer Science at the University of Passau are tailored to meet these requirements and offer training within the central subject areas of Computer Science on the basis of scientific methods. [5]As part of the M.Sc. Computer Science (Master Informatik) programme, students will acquire a range of specialist knowledge, kills and methods enabling them to undertake independent scientific work while facilitating their involvement

in the latest research topics of Computer Science. [6]Those graduating from this degree programme are able to assess theories and methods, established procedures, tools and Computer Science models according to scientific criteria, and have the ability to apply their skills to solving real-world challenges. [7]They possess qualified expertise in the specification, implementation, evaluation, design, optimisation and application of complex Computer Science systems. [8]Graduates are able to communicate competently with users and professionals regarding problems and approaches, and present the results of their work. [9]Capable of taking responsibility for independent activities and sophisticated tasks in industry, public administration and academia, graduates from this degree programme are able to take up executive roles or make a contribution to research and development within the field of Computer Science. [10]Whilst studying towards their degree, students acquire in-depth specialist knowledge by choosing one of the offered specialisations.

(3) The language of instruction is German; the degree programme can, however, also be completed entirely in English, with potential limitations regarding the choice of subject areas for specialisation.

§ 3 Entry qualifications (Computer Science subject component)

In accordance with § 4 sec. 1 clause 1 no. 1 of the general study and examination regulations, applicants must have a university degree with a minimum Computer Science subject component of at least 110 ECTS credits.

§ 4 Contents of the degree programme and module groups

(1) [1]The degree programme is broken down into compulsory core modules and compulsory elective module groups. [2]The compulsory elective modules are grouped into five subject areas and one ‘general modules’ group. [3]Students are required to choose their specialisation from one of the five module groups listed in clause 3 nos. 1 to 5, which they must state when requesting their final transcript pursuant to § 24 sec. 1 clause 1 of the general study and examination regulations. [4]Students who have completed more modules than are required to earn a total of 120 ECTS credits at the time of making the request should indicate which of the modules should be counted towards their final grade (overall average mark).

(2) [1]The compulsory core modules are as follows:

Module	ECTS value	Examination
Computer Science Seminar	5	Written preparation (maximum 10 pages) and oral presentation (approx. 20 to 60 minutes); the exact type of examination is announced on the noticeboards and on the faculty's website before or at the start of the semester.
Presentation of the master's thesis	3	Oral examination (approx. 20 minutes or approx. 45 minutes); the exact duration of the examination is announced beforehand by the examiner.

[2]In order to register for the ‘Presentation of the master's thesis’ module, students must have previously submitted their master’s thesis pursuant to § 21 sec. 6 of the general study and examination regulations.

(3) The following module groups are available in the compulsory elective module area:

1. Algorithmics and Mathematical Modelling specialisation area
This module area deals with deterministic and stochastic algorithms and how they are implemented, evaluated and optimised as well as modelling and complexity analysis of discrete and continuous problems.

2. Programming and Software Systems specialisation area
In this module area, students are acquainted with modern methods for constructing large-scale software systems as well as creating and using tools for software authoring, analysis and optimisation.

3. Information and Communication Systems specialisation area
These modules, which focus on the interplay between the classic Computer Science areas of information systems and computer networks, deal with the challenges posed by the global distribution and networking of information with simultaneously increasing volume and complexity as well as the growing demands on the quality and performance of computer communications.

4. Intelligent Technical Systems specialisation area
This module group teaches students the necessary knowledge in systems theory, machine learning and signal and image processing to explore the theory and practical application of intelligent, self-learning systems.

5. IT Security and Reliability specialisation area
The security and reliability of Computer Science systems are investigated, starting with hardware circuits and moving on to communications protocols as well as complex, networked application systems and their secure operation, whereby both the design methodologies and security architectures are given due consideration along with the technical implementation of the underlying components.

6. General modules
The general modules area consists of additional modules which are not included in any of the specialisation module groups.

§ 5 Types of examination

[1]As a rule, modules make use of one of the following types of examination:

	Course	ECTS value	Examination
1.	Lecture with or without accompany-ing tutorial	5–9	– Written examination (60 to 120 minutes) or – Oral examination (approx. 15–30 minutes) or – Presentation (approx. 20 minutes) and final report (approx. 20 pages) or – Presentation (approx. 30 minutes) followed by an oral examination (approx. 30 minutes) or – Portfolio [1]Possible portfolio components include: • Technical report • Documented source code for individual modules • Live system demonstration • Creation of video demonstrations • Partial presentations on individual work • Final presentation [2]Portfolio work is undertaken during the semester in which the module is taught. [3]The allotted time for individual components of the portfolio review may not exceed 4 weeks.

			[4]The final work should be delivered no later than 4 weeks after the end of lectures. [5]Individual technical reports should not exceed 10 pages in length. [6]If the technical report consists of several sub-reports, each sub-report should not exceed 5 pages in length. [7]Partial presentations should have a duration of approx. 10 minutes and should involve the use of suitable media and presentation formats. [8]The final presentation should be approx. 15 minutes in length and should likewise involve suitable media and presentation formats.
2.	Lecture with accompany-ing tutorial and laboratory course	5–9	– Portfolio (project work focused on the development, implementation and presentation of the students' own software components and the project report as well as an oral examination of approx. 30 minutes in length) or – Complete written documentation (10–15 pages) and presentation with discussion (approx. 30 minutes) on the chosen assignment.
3.	Lecture with accompany-ing seminar	5–9	Final report (maximum 20 pages) and presentation (approx. 20 to 60 minutes) on the project.
4.	Tutorial	5–9	– Portfolio (log books, approx. 15-minute presentation, approx. 60-minute final presentation [compulsory attendance for laboratory work and during presentations held by fellow students]) or – Portfolio (project work involving the independent development and demonstration of experiments [comprehensive compulsory attendance applies]) or – Portfolio (source code, project report and presentation).
5.	Laboratory course	5–9	• Written examination (180 minutes) or • Oral examination (approx. 60 minutes) or – Portfolio. [1]Possible portfolio components include: • Documented and functioning source code for individual modules (both as source code and as a working application) • Live system demonstration • Creation of video demonstrations • Written partial examination • Technical report • Presentation of the materials created using suitable presentation techniques, e.g. PowerPoint • Partial presentations of individual work • Ongoing, rolling technical sub-reports to be compiled into a comprehensive document. • Final presentation

			[2]Portfolio work is undertaken during the semester in which the module is taught. [3]The time allotted for individual components of the portfolio review may not exceed 4 weeks. [4]The final work should be delivered no later than 4 weeks after the end of lectures.
6.	Seminar	5	Written preparation (10 pages maximum) and presentation (approx. 20 to 60 minutes). The exact presentation duration is announced on the noticeboards and on the faculty's website before or at the start of the semester.

[2]Where several examination formats are available to choose from for a course type, the exact examination format is specified in the module catalogue. [3]If the module catalogue also lists several alternative examination formats for a module, the exact examination format is announced on the noticeboards and on the faculty's website before or at the start of the semester. [4]The module catalogue may specify additional course types or examination formats for compulsory elective modules.

§ 6 Master's examination (required compulsory and compulsory elective modules)

In order to pass the master's examination the following compulsory modules and compulsory elective modules must have been completed pursuant to § 9 sec. 2 of the general study and examination regulations and a total of at least 120 ECTS credits must have been accrued:

1. the compulsory core modules pursuant to § 4 sec. 2,
2. modules amounting to a combined minimum of 40 ECTS credits from one of the specialisation module groups listed in § 4 sec. 3 nos. 1 to 5,
3. modules amounting to a combined minimum of 30 ECTS credits from the other specialisation module groups and the general modules area listed under § 4 sec. 3 nos. 1 to 6.

§ 7 Effective date, abrogation and transitional provision

[1]These by-laws come into effect on 1 April 2016. [2]They replace the study and examination regulations for the M.Sc. Computer Science (Master Informatik) at the University of Passau of 7 February 2013 (vABlUP p. 3), which become ineffective on the same date. [3]Notwithstanding clause 1, these by-laws do not apply to those students enrolled in the M.Sc. Computer Science (Master Informatik) programme of the University of Passau who commenced their studies before the effective date of the present by-laws, unless their studies were interrupted and they have been de-registered from the degree programme for at least four consecutive semesters. [3]The study and examination regulations of 7 February 2013 (vABlUP p. 3), most recently amended by statute on 22 December 2014 (vABlUP p. 360), continue to apply to students affected by clause 2 until the conclusion of their studies in the M.Sc. Computer Science (Master Informatik) degree programme at the University of Passau. [5]Students affected by clause 2 may – irrevocably – give written notice to the Examinations Office by 30 September 2016 to the effect that they wish to study their M.Sc. Computer Science (Master Informatik) degree programme in accordance with the present subject-specific study and examination regulations in conjunction with the general study and examination regulations for the master's programmes offered by the Faculty of Computer Science and Mathematics of the University of Passau.

Issued as per the resolution of the Senate of the University of Passau of 11 November 2015 and as approved by the President of the University of Passau on 26 April 2016, reference number VII/2.I-10.3950/2016.

Passau, 27 April 2016

UNIVERSITY OF PASSAU
The President

Professor Carola Jungwirth

These by-laws were issued by the University on 27 April 2016 and announced on 27 April 2016 by posting on the noticeboards of the University.

The date of announcement is 27 April 2016.