

Discipline-Specific Study and Examination Regulations for the Master's Program in Software Systems Engineering at the University of Potsdam¹

Dated January 26, 2022

The Faculty Council of the Digital Engineering Faculty of the University of Potsdam pursuant to §§ 19 para. 1, 22 para. 1-3, 31 in conjunction with § 72 para. 2 (1) of the Law Governing the Universities in Brandenburg (BbgHG) of 28 April 2014 (GVBl.I/14, [No. 18]), as last amended by the Law of 23 September 2020 ([GVBl.I/20 \[No. 26\]](#)) in conjunction with the regulation on the organization of examination regulations to ensure the equivalency of studies, examinations, and degrees (HSPV) of 4 March 2015 (GVBl.II/15, [No. 12]), and amended by the ordinance of July 7, 2020 ([GVBl.II/20, \[No. 58\]](#)), and the ordinance regulating study accreditation (Study Accreditation Ordinance - StudAkkV) of October 28, 2019 (GVBl.II/19, [No. 90]) and with Art. 21 para. 2 No. 1 of the General Rules and Regulations of the University of Potsdam (GrundO) of 17 December 2009 (AmBek. UP No. 4/2010 p. 60) in the version of the fifth statute to amend the General Rules and Regulations of the University of Potsdam (GrundO) of 24 August 2018 (AmBek. UP No 11/2018 p. 634) and §1 para. 2 of the new version of the general study and examination regulations for non-teaching-related Bachelor's and Master's degree programs at the University of Potsdam dated 30 January 2013 (BAMA-O) (AmBek UP No. 3/2013, p. 35), last changed on 16 December 2020 (AmBek. UP No. 2/2021 p. 10), on January 26, 2022, the following study and examination regulations were adopted as statutes:²

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§ 1 Scope

(1) These regulations apply to the Master's degree in *Software Systems Engineering* at the Digital Engineering Faculty of the University of Potsdam. As subject-specific regulations, they supplement the new version of the general study and examination regulations for the non-teaching-related Bachelor's and Master's degree programs at the University of Potsdam (BAMA-O).

(2) In the event of a discrepancy between these regulations and the BAMA-O, the provisions of the BAMA-O take precedence over the provisions of these regulations.

§ 2 Degree

The Faculty of Digital Engineering at the University of Potsdam awards the degree of "Master of Science" ("M.Sc.") to students who have earned the required credit points and fulfilled the necessary graduation requirements.

§ 3 Goal of the Study Program and Professional Relevance

(1) The consecutive Master's degree program is science and research-oriented. The program provides a comprehensive scientific foundation, extended specialist knowledge and skills in the field of software systems engineering and computer science, and further methodological, social and personal skills.

(2) Graduates have a wide range of skills and knowledge of theories, concepts, methods, techniques and procedures for design, planning, analysis and development, or ongoing development, as well as maintenance of complex IT and data systems, IT applications, IT infrastructures and IT solutions. In addition, they have in-depth specialist knowledge in their selected specialization areas of software systems engineering. Students are able to carry out scientific work and to present themselves professionally in an English-speaking environment. They are able to prepare results on research questions and implementation work in English for the specialist audience and to present them in a way that is universally comprehensible.

¹ This translation is for informational purposes only. In the event of inconsistency or discrepancy between the German and English versions of these regulations, the German-language version shall prevail.

² Approved by the President of the University of Potsdam, on March 1, 2022.

(3) The Master's program additionally provides students with in-depth knowledge and skills that are necessary for scientific work, scientifically sound judgment, critical reflection on subject-related knowledge and responsible conduct. Further key skills are taught in the areas of methodological competence, social competence and personal competence. In particular, the students acquire key skills that are required to manage and lead complex IT projects. The Master's degree enables graduates to present and understandably communicate results to decision-makers and critically discuss new ideas. Graduates are also able to assess ethical and legal issues in dealing with complex IT systems and data. They are able to work responsibly in teams and to plan, implement, evaluate, and control work-sharing solutions.

(4) Upon graduation, students receive a further professional qualification. Graduates are in a position to take on management and managerial posts, especially where the design, implementation, maintenance and operation of complex IT systems, IT applications, IT infrastructures and IT solutions play an important role (e.g., as a software architect, software project lead, IT consultant, software developer, application developer, software quality officer, IT entrepreneur, etc.). Graduates are further able to carry out development and research work independently, to set up companies with an IT focus or to expand their scientific qualifications in a subsequent doctoral program. They are able to use the skills acquired during their studies as they accompany and help shape the necessary change processes in business, science and society brought about by digitization.

§ 4 Duration and Structure of the Study Program

(1) The University of Potsdam offers the Master's degree as a one-subject degree with 120 credit points. The standard period of study for the Master's degree is four semesters.

(2) The Master's program is structured as follows:

Mandatory modules	42 CP
Compulsory elective modules (Specialization area)	36 CP
Compulsory elective modules (Professional Skills)	12 CP
Master's thesis	30 CP
Total	120 CP

§ 5 Academic Coordination; Documentation of Performance

In accordance with § 8 para. 5 BAMA-O, the tasks of the Admissions Office are transferred to the Office of Student Affairs of the Digital Engineering Faculty.

§ 6 Modules of the Master's Program

(1) The Master's program in Software Systems Engineering is comprised of the following components:

Code	Title	CP
I Compulsory modules (42 CP)		
HPI-SSE-C	Conceptual Foundations	6
HPI-SSE-D	Data Foundations	6
HPI-SSE-A	Analytical Foundations	6
HPI-SSE-S	Systems Foundations	6
HPI-SSE-L	Software Systems Engineering Lab	12
HPI-SSE-EL	Ethics, Law and Compliance	6
II Compulsory elective modules		
<i>1. Specialization areas (36 CP)</i>		
<i>A total of two specialization areas, each with three modules, must be completed.</i>		
SSYS: Software Systems		
HPI-SSYS-C	Software Systems - Concepts and Methods	6
HPI-SSYS-T	Software Systems - Technologies and Tools	6
HPI-SSYS-S	Software Systems - Specialization	6
OISY: Online and Interactive Systems		
HPI-OISY-C	Online and Interactive Systems - Concepts and Methods	6
HPI-OISY-T	Online and Interactive Systems - Technologies and Tools	6
HPI-OISY-S	Online and Interactive Systems - Specialization	6
DSYS: Data-Driven Systems		
HPI-DSYS-C	Data-Driven Systems - Concepts and Methods	6
HPI-DSYS-T	Data-Driven Systems - Technologies and Tools	6
HPI-DSYS-S	Data-Driven Systems - Specialization	6
MALA: Machine Learning and Analytics		
HPI-MALA-C	Machine Learning and Analytics - Concepts and Methods	6
HPI-MALA-T	Machine Learning and Analytics - Technologies and Tools	6
HPI-MALA-S	Machine Learning and Analytics - Specialization	6

MODA: Models and Algorithms		
HPI-MODA-C	Models and Algorithms - Concepts and Methods	6
HPI-MODA-T	Models and Algorithms - Technologies and Tools	6
HPI-MODA-S	Models and Algorithms - Specialization	6
2. <i>Professional Skills (PSK) (12 LP)</i> <i>Two modules are to be chosen from the following modules.</i>		
HPI-PSK-KT	Technology Communication and Transfer	6
HPI-PSK-ML	Management and Leadership	6
HPI-PSK-DT	Design Thinking	6
HPI-PSK-EI	Entrepreneurship and Innovation	6
<i>Total CP</i>		<i>90</i>
III Master's thesis		30

(2) The language of instruction in the Master's program *Software Systems Engineering* is English.

(3) Details of the modules mentioned in Section 1 are defined in Appendix 1 of these regulations.

(4) An example study plan for the master's program can be found in Appendix 2 of these regulations.

§ 7 Master's Thesis

(1) When a student has completed 72 of the required credit points, the student is entitled to the immediate assignment of a topic for the Master's thesis.

(2) The Master's thesis, including the oral defense, has a scope of 30 credit points.

(3) The Master's thesis topic is to be assigned to one or more of the areas of specialization.

§ 8 Free Attempts

With the exception of the "Software Systems Engineering Lab" module, two free attempts are possible in the Master's degree program *Software Systems Engineering*.

§ 9 Entry into Effect

(1) These regulations come into effect on the day after their publication in the official announcements of the University of Potsdam.

(2) Upon their entry into effect, these regulations apply to all students who are enrolled in the *Software Systems Engineering* Master's degree program at the University of Potsdam.

Appendix 1: Module Catalog

The descriptions of the program's modules in §6 and in the tables below are guided by the regulations of the module catalog of the Digital Engineering Faculty for the Bachelor's and Master's Programs at the University of Potsdam (MK DEF). Supplementary regulations and/or deviations from the regulations of the MK DEF are indicated in the following tables.

Module code	Module title	CPs	OM/ EM	Zugangsvoraus- setzung
HPI-SSE-C	Conceptual Foundations (Software Systems Engineering)	6	OM	see MK DEF
HPI-SSE-D	Data Foundations (Software Systems Engineering)	6	OM	see MK DEF
HPI-SSE-A	Analytical Foundations (Software Systems Engineering)	6	OM	see MK DEF
HPI-SSE-S	Systems Foundations (Software Systems Engineering)	6	OM	see MK DEF
HPI-SSE-L	Software Systems Engineering Lab	12	OM	see MK DEF
HPI-SSE-EL	Ethics, Law and Compliance (Software Systems Engineering)	6	OM	see MK DEF
HPI-SSYS-C	Software Systems - Concepts and Methods (Software Systems Engineering)	6	EM	see MK DEF
HPI-SSYS-T	Software Systems - Technologies and Tools (Software Systems Engineering)	6	EM	see MK DEF
HPI-SSYS-S	Software Systems - Specialization (Software Systems Engineering)	6	EM	see MK DEF
HPI-OISY-C	Online and Interactive Systems - Concepts and Methods (Software Systems Engineering)	6	EM	see MK DEF
HPI-OISY-T	Online and Interactive Systems - Technologies and Tools (Software Systems Engineering)	6	EM	see MK DEF
HPI-OISY-S	Online and Interactive Systems - Specialization (Software Systems Engineering)	6	EM	see MK DEF
HPI-DSYS-C	Data-Driven Systems - Concepts and Methods (Software Systems Engineering)	6	EM	see MK DEF
HPI-DSYS-T	Data-Driven Systems - Technologies and Tools (Software Systems Engineering)	6	EM	see MK DEF
HPI-DSYS-S	Data-Driven Systems - Specialization (Software Systems Engineering)	6	EM	see MK DEF
HPI-MALA-C	Machine Learning and Analytics - Concepts and Methods (Software Systems Engineering)	6	EM	see MK DEF
HPI-MALA-T	Machine Learning and Analytics - Technologies and Tools (Software Systems Engineering)	6	EM	see MK DEF
HPI-MALA-S	Machine Learning and Analytics - Specialization (Software Systems Engineering)	6	EM	see MK DEF
HPI-MODA-C	Models and Algorithms - Concepts and Methods (Software Systems Engineering)	6	EM	see MK DEF
HPI-MODA-T	Models and Algorithms - Technologies and Tools (Software Systems Engineering)	6	EM	see MK DEF
HPI-MODA-S	Models and Algorithms - Specialization (Software Systems Engineering)	6	EM	see MK DEF
HPI-PSK-KT	Technology Communication and Transfer	6	EM	see MK DEF
HPI-PSK-ML	Management and Leadership	6	EM	see MK DEF
HPI-PSK-DT	Design Thinking	6	EM	see MK DEF
HPI-PSK-EI	Entrepreneurship and Innovation	6	EM	see MK DEF

CPs = Number of Credit Points; OM = Obligatory Module; EM = Elective Module

Appendix 2: Example Study Plan for the Master’s Degree in *Software Systems Engineering* (starting in the winter semester)

1. Semester	2. Semester	3. Semester	4. Semester
HPI-SSE-C Conceptual Foundations (6 CP)	HPI-SSE-A Analytical Foundations (6 CP)	HPI-SSE-L Software Systems Engineering Lab (12 CP)	HPI-MA Master’s thesis (30 CP)
HPI-SSE-D Data Foundations (6 CP)	HPI-SSE-S Systems Foundations (6 CP)		
HPI-SSE-EL Ethics, Law and Compliance (6 CP)	HPI-PSK-M Professional Skills (6 CP)	HPI-PSK-M Professional Skills (6 CP)	
HPI-VT1 Specialization area 1 (6 CP)	HPI-VT1 Specialization area 1 (6 CP)	HPI-VT1 Specialization area 1 (6 CP)	
HPI-VT2 Specialization area 2 (6 CP)	HPI-VT2 Specialization area 2 (6 CP)	HPI-VT2 Specialization area 2 (6 CP)	

Note:

The study plan uses the module abbreviations from § 6. The first area of specialization is designated as HPI-VT1, and the second area of specialization as HPI-VT2. The elective modules from Professional Skills are referred to as HPI-PSK-M.