Study Regulations Governing the Bachelor's Degree Programme 'Computer Science (English)' at Saarland University

25 February 2021

Note: This translation is provided for information purposes only. In the event of any discrepancy between the translation and the original German version published in the Official Bulletin (*Dienstblatt der Hochschulen des Saarlandes*), the provisions of the latter shall take precedence.

Pursuant to Section 60 of the Saarland Higher Education Institutions Act (SHSG) (Official Gazette of Saarland I, p. 1080) of 30 November 2016 most recently amended in law by the Act of 8–9 December 2020 (Official Gazette I (2021), p. 53) and on the basis of the Joint Examination Regulations for Bachelor's and Master's Degree Programmes of the Faculty of Mathematics and Computer Science of 25 February 2021 (Official Bulletin No. 62, p. 580) and with the consent of the Saarland University Senate, the Faculty of Mathematics and Computer Science at Saarland University hereby issues the following Study Regulations Governing the Bachelor's Degree Programme 'Computer Science (English)'.

Section 1
Scope

These study regulations, which govern the content and structure of the Bachelor's degree programme 'Computer Science (English)', are based on the Joint Examination Regulations for the Bachelor's and Master's Degree Programmes of the Faculty of Mathematics and Computer Science of 25 February 2021 (Official Bulletin No. 62, p. 580) and on the Subject-Specific Regulations for the Bachelor's Degree Programme 'Computer Science (English)' of 25 February 2021 (Official Bulletin No. 65, p. 612). The Faculty of Mathematics and Computer Science is responsible for organizing the teaching, study curriculum and examinations associated with this programme.

Section 2
Objectives of the degree programme and career relevance

(1) The Bachelor's degree programme 'Computer Science (English)' leads to an initial academic qualification with students on the programme acquiring the basic scientific concepts, knowledge and skills in the field of computer science. Graduates from the Bachelor's degree programme 'Computer Science (English)' are able to understand the problems and questions addressed in computer science and are equipped to tackle these problems by generating appropriate mathematical models and applying relevant scientific methods and programming techniques. The programme is designed to appeal to international students with an interest in research by offering core and advanced lecture courses covering a broad range of areas within computer science and informatics. The Bachelor's degree programme also aims to prepare graduates for careers in computer science and related areas. Another important objective of the programme is to teach students key career skills, such as good language skills, effective communication, teamwork and the ability to independently acquire an understanding of new topics.

(2) The academic training that students acquire on the B.Sc. programme 'Computer Science (English)' provides a solid foundation on which to study for a Master's degree in this and related disciplines.

Section 3
Start and duration of programme

(1) Students begin the programme at the start of the winter semester.

(2) The curriculum is organized such that the programme can be completed in six semesters (standard period of study).

Section 4
Types of academic instruction

The curriculum content is taught using the following types of academic instruction:

1. Lectures ('L', standard class size = 100): Lectures serve to introduce a particular subject area and also provide an overview of the relevant theoretical concepts and principles, methodologies and skills, technologies and practical implementations that are common to the subject. Lecture courses provide suggestions for further reading on a topic and open the way to acquiring a deeper understanding of an area through subsequent exercise and problem-solving classes, practical skills classes and self-directed study.

2. Exercise and problem-solving classes ('EP', standard class size = 20): Exercise and problem-solving classes are small-group sessions used primarily to supplement and reinforce what was learned in the lectures. Students work on representative problems as this provides an opportunity for them to apply and deepen the knowledge they acquired in the lectures, to assess their personal understanding of a specific area and to clarify any questions that they may have.

3. Seminars ('S', standard class size = 15) Seminars provide an opportunity for students to broaden the knowledge and skills that they have already acquired and to gain a deeper understanding of a particular field of research by participating in discussions, giving presentations or completing seminar assignments based on their study of the specialist literature and relevant academic sources. They also help students acquire the skills necessary for the effective oral and visual presentation of scientific and academic content and encourage students to engage in critical analysis and discussion of research results. A seminar may also include project-related work in areas of current scientific interest or debate. The deeper understanding of a particular field that students acquire through project-related work in the Bachelor's seminar may provide the basis for their Bachelor's thesis project.

4. Practical skills classes and project work ('P', standard class size = 15): Practical skills classes or projects offer a number of practical, subject-related topics that introduce students to the specific approaches and methods used in a particular discipline or field of study. The necessary theoretical knowledge underlying a specific topic is acquired by attending lectures and studying the relevant scientific literature. An additional goal of the practical skills classes is to provide students with the opportunity to gain practical experience with computer-aided methods. Projects tend to address interdisciplinary topics. Working on a topic offers students the opportunity to work in supervised groups to tackle specific assignments from the initial solution design concept through to its final practical implementation. Students learn about the relationships between theory and practice not only through their own independent study and research, but also through project-based teamwork. Participation in a particular practical skills class or project may be dependent on a student having first successfully completed a required course of lectures and exercise and problem-solving classes.

Section 5
Structure and content of the programme

(1) To graduate from the Bachelor's degree programme 'Computer Science (English)', students shall earn a total of 180 credits (often referred to in Germany as 'credit points' or 'CPs') as defined by the European Credit Transfer System (ECTS). As a rule, students are required to earn 30 credits per semester.

(2) The degree programme comprises modules from different module categories. Appendix A provides details of the modules and module elements in each of these categories, the type of academic instruction used, the associated workload (number of credit hours per week), the ECTS credits earned, the type of academic assessment and whether the module is graded. Students are required to earn the specified number of credits in each of the module categories. The 'mandatory elective' category comprises modules or module elements that a student can select from a specified list.

1. Two ungraded credits from the mandatory area 'Lecture Series on Topics in Computer Science':

   Perspectives in Computer Science (2 credits)

2. 27 graded credits from the mandatory area 'Fundamentals of Mathematics':

a) Mathematics for Computer Scientists 1 (9 credits)
b) Mathematics for Computer Scientists 2 (9 credits)
c) Mathematics for Computer Scientists 3 (9 credits)

3. 60 graded credits from the mandatory area 'Fundamentals of Computer Science':

a) Programming 1 (9 credits)
b) Programming 2 (9 credits)
c) System Architecture (9 credits)
d) Introduction to Theoretical Computer Science (9 credits)
e) Big Data Engineering (6 credits)
f) Fundamentals of Data Structures and Algorithms (6 credits)
g) Concurrent Programming (6 credits)
h) Elements of Machine Learning (6 credits)

4. 9 ungraded credits from the mandatory practical skills classes:

   Practical Training 'Software Engineering Lab' (9 credits)

5. 5 graded credits from the mandatory elective category 'Introductory Seminars on Topics in Computer Science' (each worth 5 credits)

6. 7 graded credits from the mandatory elective category 'Seminars on Topics in Computer Science' (each worth 7 credits)

7. 18 graded credits from the core lecture courses in computer science (each worth 9 credits; module category: mandatory elective)

8. At least 18 and at most 21 graded credits from the core lecture courses on computer science (each worth 9 credits; module category: mandatory elective) or from the advanced lecture courses in computer science (number of credits that can be earned

depends on the course taken)

9. At least 6 ungraded credits from the mandatory elective category ‘German or English Language Courses’ at Saarland University (note: the language chosen shall not be the student’s native language); the Examination Board may, on request, permit courses in other languages if the student can demonstrate that they already have a very good command of spoken and written German and spoken and written English.

10. At least 7 ungraded credits from the mandatory elective category ‘Freely Selectable Modules’, where modules/module elements can be chosen from the following options:

a) Freely selectable modules or module elements in the Bachelor’s degree programme ‘Computer Science (English)’

b) Additional language courses (maximum of 6 credits; modern languages only and not the student’s native language).

c) Tutoring and supervising undergraduate students in exercise and problem-solving classes (usually 4 credits). Tutoring several groups of students is permitted, provided that the exercise or problem-solving classes are from different modules.

d) Work placement or internship in industry (maximum of 6 credits) for which an application was submitted to and approved by the Examination Board.

e) Modules / module elements for which an application was submitted to and approved by the Examination Board. Students may, for example, submit an application to the Examination Board requesting recognition of certain student activities (particularly university-related administrative activities) or of attendance at courses teaching key skills (maximum of 3 credits in each case).

11. 9 graded credits from the ‘Bachelor’s Seminar’ module and
    12 graded credits from the ‘Bachelor’s Thesis’ module.

(3) Of the 180 credits that have to be earned in the Bachelor’s degree programme ‘Computer Science (English)’, at least 156 credits and at most 159 credits shall be from graded assessments or assignments.

(4) To fulfil the requirements of the mandatory sections of the curriculum, students shall complete all of the modules specified in Section 5(2), items 1, 2, 3, 4 and 11 above. Students are required to earn a total of 119 credits from the mandatory sections of the programme curriculum. In the mandatory elective sections of the programme, students can take modules or module elements from a specified list, provided that they meet the relevant prerequisites. Students are required to earn a total of 61 credits from the mandatory elective sections of the programme curriculum.

(5) The number of places available in practical skills classes, introductory seminars, seminars, tutoring activities and language courses may be limited. This may also apply to modules or module elements in other sections of the curriculum. Admission to these modules is managed by the module coordinator.

(6) Academic credits are either graded or ungraded. A graded academic assessment or examination cannot be split into ungraded and graded credits.

(7) If a student fails an assessment or examination for a module from Section 5(2), items 2 and 3 at the first scheduled attempt, the student shall be permitted to retake the assessment or examination on one further occasion within the same examination or assessment period

provided that the module completion deadline has not expired (cf. Section 13(4) of the Examination Regulations). In such cases, the first failed attempt shall be treated as if it had not occurred (cf. provisions governing the '*Freiversuch*' option in Section 17(4) of the Examination Regulations). The completion deadline for the aforementioned modules is the end of the sixth semester.

(8) A student who received academic credits for successfully completing a course or module as per Section 5(2), items 2 and 3 or a core lecture course is permitted to retake the assessment or examination on one further occasion within the same examination period (cf. Section 13(4) of the Examination Regulations) and during the standard period of study in order to attain a better grade. A student who has received academic credits for successfully completing an advanced lecture course is permitted to retake the assessment or examination on one further occasion within the same examination period in order to attain a better grade, provided that the lecturer gave notice at the beginning of the course that the final examination or assessment may be repeated for this purpose. The student will be awarded the better of the two grades achieved. In all other cases, students are not permitted to repeat an assessment or examination for which they have already achieved at least the minimum passing grade.

(9) Modules that have the same content and that differ only in the language of instruction used shall be treated as a single module with respect to the number of examination attempts permitted and the rules regarding failed first attempts (*Freiversuch* option) and retakes to improve the grade attained, if such provisions are contained in the relevant study regulations.

(10) The modules in the mandatory sections of the programme are offered at least once a year. The modules that are offered as core lecture courses in the mandatory elective category are offered at least once every two years. Modules that are offered as introductory seminars, seminars and advanced lecture courses will not necessarily be repeated. The Dean of Studies will ensure that a sufficient number of modules are offered in each academic year.

(11) The language of instruction in the Bachelor's degree programme 'Computer Science (English)' is normally English. Any exceptions will be announced at the beginning of the module or module element.

(12) The range of modules offered as mandatory electives may be modified for one or more semesters, though any such change shall require the approval of the Examination Board. These additional modules or module elements, their weighting in ECTS credits and their classification within the different module categories will be announced before the semester begins.

(13) Detailed information regarding the content of modules and module elements is provided in the module catalogue that will be made available in suitable form. Any changes or amendments to the information in the module catalogue that are not covered by the provisions of these regulations shall be reported to the Dean of Studies and documented appropriately.

(14) Course attendance may be compulsory for certain introductory seminars, seminars, problem-solving classes and practical skills classes. Students will be notified of this by the instructor at the beginning of the module or module element. The compulsory attendance requirement is normally deemed to have been met if a student was present for at least 85% of the course sessions. If there are reasonable grounds for a student's absence, the student may be offered the option of completing alternative assignments.

Section 6
Study plan

The Dean of Studies will compile a study plan based on these study regulations that includes details of the types and scope of the module modules elements offered (Appendix A) with recommendations on how students can organize and structure their studies efficiently (Appendix B). The study plan will be made available in suitable form. The range of modules / module elements offered in the different module categories in a particular semester will be published in the Saarland University course catalogue for that semester.

Section 7
Student advisory services

(1) The Central Student Advisory Service (*Zentrale Studienberatung*) at Saarland University provides counselling and guidance to prospective students and enrolled students concerning the content, structure and requirements of academic study at Saarland University. It also can advise and assist students with respect to their study options as well as with planning and organizing their studies.

(2) Questions concerning curricular demands, learning objectives, admission requirements and programme-specific study planning and organization can be addressed to the programme adviser with responsibility for the Bachelor's degree programme 'Computer Science (English)'.

(3) Questions specific to individual modules / module elements should be addressed to the respective module coordinators.

Section 8
Study abroad period

Students have the opportunity to spend part of the programme studying abroad. The study abroad period should be taken after the student has completed the modules that cover the fundamentals of the subject. Students interested in studying abroad should seek advice from a relevant source, take preparatory language courses as needed and should clarify credit transfer arrangements in accordance with the examination regulations by completing a study abroad learning agreement. Information on study abroad opportunities, exchange programmes, scholarships and administrative formalities is available from Saarland University's International Office or from the relevant departmental or subject representatives. As foreign host universities and scholarship-awarding bodies often have early application deadlines and long application processing times, study abroad applications should normally be submitted to the Examinations Office one year before the planned start date.

Section 9
Bachelor's thesis and Bachelor's seminar

(1) By completing a Bachelor's thesis, students demonstrate that they are able to work independently on addressing a theoretical-conceptual problem and/or an applied problem in the field of computer science or a related area. The completion period for the thesis is three months. Students are awarded 12 ECTS credits for completing their Bachelor's thesis.

(2) Before finishing their Bachelor's thesis, each student shall have successfully completed a Bachelor's seminar in an area of direct relevance to the topic being addressed in the thesis.

Students attending a Bachelor's seminar shall give an oral presentation on the problem they propose to tackle in their thesis project and submit a written description of the issues to be addressed.

(3) Students shall register their thesis project with the Examinations Office no later than one semester after successfully completing the Bachelor's seminar. Students who fail to meet this deadline will be required to successfully complete another Bachelor's seminar.

Section 10
Commencement

These regulations shall come into force on the day after they are announced in the Official Bulletin of the Institutions of Higher Education in Saarland (*Dienstblatt der Hochschulen des Saarlandes*).

Saarbrücken, 12 August 2021

On behalf of the President of Saarland University
(Univ.-Prof. Dr. Manfred Schmitt)

Vice-President for Administration and Finance
(Dr. Roland Rolles)

Appendix A – Modules, assessments and examinations in the Bachelor's degree programme 'Computer Science (English)'

B.Sc. Computer Science (English)						Winter semester		Summer semester		Semester break		Winter semester		Summer semester		Winter semester		Summer semester	
						Subject semester													
Module category	**Modules**	**Type of assessment**	Grading	**ECTS credits**		**1**		**2**				**3**		**4**		**5**		**6**	
				u	g	L / EP / P hrs/wk	credits	L / EP / P hrs/wk	credits	L / EP / P hrs/wk	credits	L / EP / P hrs/wk	credits	L / EP / P hrs/wk	credits	L / EP / P hrs/wk	credits	L / EP / P hrs/wk	credits
Mandatory section: Lecture Series 'Perspectives in Computer Science'		written	u	2	0	2/0/0	2												
Mandatory section: Fundamentals of Mathematics	Mathematics for Computer Scientists 1	written exam(s), PA	g	0	9	4/2/0	9												
	Mathematics for Computer Scientists 2	written exam(s), PA	g	0	9			4/2/0	9										
	Mathematics for Computer Scientists 3	written exam(s), PA	g	0	9							4/2/0	9						
Mandatory section: Practical skills classes	Software Engineering Lab	Project work	u	9	0					2 / 0 / 4	9								
Mandatory section: Fundamentals of Computer Science	Programming 1	written exam(s), PA	g	0	9	4/2/0	9												
	Programming 2	written exam(s), PA	g	0	9			4/2/0	9										
	System Architecture	written exam(s), PA	g	0	9			4/2/0	9										
	Introduction to Theoretical Computer Science	written exam(s), PA	g	0	9							4/2/0	9						
	Fundamentals of Data Structures and Algorithms	written exam(s), PA	g	0	6							2/2/0	6						
	Big Data Engineering	written exam(s), PA	g	0	6									2/2/0	6				
	Concurrent Programming	written exam(s), PA	g	0	6									2/2/0	6				
	Elements of Machine Learning	written exam(s), PA	g	0	6											2/2/0	6		
Mandatory elective section: Introductory seminars*		oral, written	g	0	5							0/0/2	5						
Mandatory elective section: Seminars*		oral, written	g	0	7									0/0/2	7				
Mandatory elective section: Core lecture courses	(Core lecture courses; 9 credits per course)	written exam(s), PA	g	0	18									4/2/0	9	4/2/0	9		
Mandatory elective section: Core or advanced lecture courses*	(Core or advanced lecture courses*; variable credits)	written exam(s), PA	g	0	18 to 21											4/2/0	9	4/2/0	9
Language course (German or English)	(Language course modules, 3 or 6 credits)	oral, written	u	6	0		6												
Mandatory elective section: 'Freely selectable modules'	(modules offered subject to change, variable credits, see list below)		u	at least 7	0				3								4		
	Bachelor's Seminar	oral, written	g	0	9														9
	Bachelor's Thesis	Bachelor's thesis (final-year research project and thesis)	g	0	12														12
TOTAL				**at least 24**	**at least 156**		**26**		**30**		**9**		**29**		**28**		**28**		**30**

* The range of modules offered in these sections varies from semester to semester and is published in the course catalogue. The Examination Board may add modules to or withdraw modules from this list.

Key: L = Lecture, EP = Exercise and problem-solving class, P = Project or practical training, PA = Preliminary assessment, credits = ECTS credits, credit hrs/wk = no. of class or supervised hours per week during the semester

Appendix A – List of modules in the Bachelor's degree programme 'Computer Science (English)'

Mandatory elective section: Core lecture courses				
Algorithms and Data Structures	written exam(s), PA	g	0	9
Artificial Intelligence	written exam(s), PA	g	0	9
Automated Reasoning	written exam(s), PA	g	0	9
Compiler Construction	written exam(s), PA	g	0	9
Complexity Theory	written exam(s), PA	g	0	9
Computer Algebra	written exam(s), PA	g	0	9
Computer Graphics	written exam(s), PA	g	0	9
Cryptography	written exam(s), PA	g	0	9
Database Systems	written exam(s), PA	g	0	9
Data Networks	written exam(s), PA	g	0	9
Distributed Systems	written exam(s), PA	g	0	9
Embedded Systems	written exam(s), PA	g	0	9
Geometric Modeling	written exam(s), PA	g	0	9
Human Computer Interaction	written exam(s), PA	g	0	9
Image Processing and Computer Vision	written exam(s), PA	g	0	9
Information Retrieval and Data Mining	written exam(s), PA	g	0	9
Introduction to Computational Logic	written exam(s), PA	g	0	9
Machine Learning	written exam(s), PA	g	0	9
Operating Systems	written exam(s), PA	g	0	9
Optimization	written exam(s), PA	g	0	9
Security	written exam(s), PA	g	0	9
Semantics	written exam(s), PA	g	0	9
Software Engineering	written exam(s), PA	g	0	9
Digital Transmission, Signal Processing	written exam(s), PA	g	0	9
Verification	written exam(s), PA	g	0	9
The Examination Board may add modules to or withdraw modules from this list.				

Mandatory elective section: Freely selectable modules				
Tutoring	Tutoring	u	4	0
Language Courses (max. 6 credits)	oral, written	u	3 or 6	0
Industrial Work Placement / Internship (max. 6 credits)		u	6	0
Other lecture courses from the international Bachelor's degree programme in Computer Science				
The Examination Board may add modules to or withdraw modules from this list.				

Appendix B

Sample study plan – Bachelor's degree programme 'Computer Science (English)'

1	Mathematics for Computer Scientists 1 (9 credits)	Programming 1 (9 credits)	Lecture Series 'Perspectives in Computer Science' (2 credits)	Language Course (6 credits)	26
2	Mathematics for Computer Scientists 2 (9 credits)	Programming 2 (9 credits)	System Architecture (9 credits)	Mandatory elective (e.g. Language Course, 3 credits)	30
takes place during break between summer and winter semesters 'Software Engineering Lab' (9 credits)					9
3	Mathematics for Computer Scientists 3 (9 credits)	Introduction to Theoretical Computer Science (9 credits)	Fundamentals of Data Structures and Algorithms (6 credits)	Introductory Seminars (5 credits)	29
4	Big Data Engineering (6 credits)	Concurrent Programming (6 credits)	Core Lecture (9 credits)	Seminar (7 credits)	28
5	Elements of ML (6 credits)	Core Lecture (9 credits)	Core / Advanced Lecture (9 credits)	Mandatory elective (e.g. Tutoring, 4 credits)	28
6	Core / Advanced Lecture Course (9 credits)	Bachelor's Seminar (9 credits)	Bachelor's Thesis (12 credits)		30