Note: Only the German version is legally binding, the English translation serves information purposes only!

Annex to the Study and Examination Regulations for the Bachelor's Degree Course "Computer Science and Artificial Intelligence" at Technische Hochschule Ingolstadt dated 22.02.2021

Overview of the modules and credit certificates

1. First study phase

1	2	3	4	5	6	7	8	9
Current no.	Modules	SWS hrs	Type of course	Examinations		Accompanying programme credits	Weighting for the overall examination grade	Credit points (ECTS credits)
				Type and duration in minutes	Admission requirement			
1	**Programming 1**						0.5	7
1.1	Programming 1	4	SU/Ü	schrP, 90-120	LN of the current No. 1.2			
1.2	Practical Course Programming 1	2	Pr			LN 1) 6)		
2	**Introduction to Computer Science 1**						0.5	7
2.1	Introduction to Computer Science I	4	SU	schrP, 90-120				
2.2	Exercise Course Introduction to Computer Science I	2	Ü					
3	**Mathematics 1**						0.5	7
3.1	Mathematics 1	4	SU	schrP, 90-120				
3.2	Exercise Course Mathematics 1	2	Ü					
4	**Probability and Statistics**						0.5	7
4.1	Probability and Statistics	4	SU	schrP, 90-120				
4.2	Exercise Course Probability and Statistics	2	Ü					

5	Introductory Project	2	Prj			LN 1) 5)		2

1	2	3	4	5	6	7	8	9
Current no.	**Modules**	**SWS hrs**	**Type of course**	**Examinations**		**Accompanying programme credits**	**Weighting for the overall examination grade**	**Credit points (ECTS credits)**
				Type and duration in minutes	**Admission requirement**			
6	**Programming 2**						0.5	7
6.1	Programming 2	4	SU	schrP, 90-120	LN of the current No. 6.2			
6.2	Practical Course Programming 2	2	Pr			LN 1) 6)		
7	**Introduction to Computer Science 2**						0.5	7
7.1	Introduction to Computer Science 2	4	SU	schrP, 90-120				
7.2	Exercise Course Introduction to Computer Science 2	2	Ü					
8	**Mathematics 2**						0.5	7
8.1	Mathematics 2	4	SU	schrP, 90-120				
8.2	Exercise Course Mathematics 2	2	Ü					
9	**Algorithms for AI 1**						0.5	7
9.1	Algorithms for AI 1	4	SU/Ü	schrP, 90-120	LN of the current No. 9.2			
9.2	Practical Course Algorithms for AI 1	2	Pr			LN 1) 6)		
10	**Scientific Research Methods**	2	SU/Ü			LN 1) 5)		2
	Total	**52**					**4**	**60**

2. Second study phase

2.1. Theoretical semester

1	2	3	4	5	6	7	8	9
Current no.	Modules	SWS hrs	Type of course	Examinations		Accompanying programme credits	Weighting for the overall examination grade	Credit points (ECTS credits)
				Type and duration in minutes	Admission requirement			
11	**Software Engineering**						1	7
11.1	Software Engineering	4	SU/Ü	schrP, 90-120	LN of the current No. 11.2			
11.2	Practical Course Software Engineering	2	Pr			LN 1) 6)		
12	**Web Technologies**						1	7
12.1	Web Technologies	4	SU/Ü	schrP, 90-120	LN of current No.12.2			
12.2	Practical Course Web Technologies	2	Pr			LN 1) 6)		
13	**Optimization Algorithms**	4	SU/Ü	schrP, 90-120			1	5
14	**Algorithms for AI 2**						1	7
14.1	Algorithms for AI 2	4	SU/Ü	schrP, 90-120	LN of the current No. 14.2			
14.2	Practical Course Algorithms for AI 2	2	Pr			LN 1) 6)		
15	**Data Visualization and Data Analytics**	4	SU/Ü	schrP, 90-120			1	5
16	**Database Systems and Big Data Technologies**						1	7
16.1	Database Systems and Big Data Technologies	4	SU/Ü	schrP, 90-120	LN of the current No. 16.2			
16.2	Practical Course Database Systems and Big Data Technologies	2	Pr			LN 1) 6)		

1	2	3	4	5	6	7	8	9
Current no.	Modules	SWS hrs	Type of course	Examinations		Accompanying programme credits	Weighting for the overall examination grade	Credit points (ECTS credits)
				Type and duration in minutes	Admission requirement			
17	**Spoken and Natural Language Understanding**						1	7
17.1	Spoken and Natural Language Understanding	4	SU/Ü	schrP, 90-120	LN of the current No. 17.2			
17.2	Practical Course Spoken and Natural Language Understanding	2	Pr			LN 1) 6)		
18	**Computer Vision**						1	7
18.1	Computer Vision	4	SU/Ü	schrP, 90-120	LN of the current No. 18.2			
18.2	Practical Course Computer Vision	2	Pr			LN 1) 6)		
19	**Algorithms for AI 3**						1	7
19.1	Algorithms for AI 3	4	SU/Ü	schrP, 90-120	LN of the current No. 19.2			
19.2	Practical Course Algorithms for AI 3	2	PR			LN 1) 6)		
20	**Seminar**	2	S			SA	1	3
21	**Cyber Security**						1	7
21.1	Cyber Security	4	SU/Ü	schrP, 90-120	LN of the current No. 21.2			
21.2	Practical Course Cyber Security	2	Pr			LN 1) 6)		

1	2	3	4	5	6	7	8	9
Current no.	Modules	SWS hrs	Type of course	Examinations		Accompanying programme credits	Weighting for the overall examination grade	Credit points (ECTS credits)
				Type and duration in minutes	Admission requirement			
22	**Human-Computer Interaction and Explainable AI**						1	7
22.1	Human-Computer Interaction and Explainable AI	4	SU/Ü	schrP, 90-120	LN of the current No. 22.2			
22.2	Practical Course Human-Computer Interaction and Explainable AI	2	Pr			LN [1) 6)]		
23	**Business Administration and Entrepreneurship**	4	SU/Ü	schrP, 90-120			1	5
24	**Project Management**	4	SU/Ü	schrP, 90-120			1	5
25	**Project**	2	Pr			ProjA	1	5
26	**Ethics and Law**	4	SU/Ü			LN [4)]	1	5
27	**Elective Modules**	8	SU/Ü/Pr			2 LN [2) 3) 4)]	Total 2	10
28	**Bachelor's thesis**						3	
28.1	Seminar bachelor's thesis	2	S	SA[1]				3
28.2	Bachelor's thesis			BA				12
	Total	88					21	121

2.2. Internship semester

1	2	3	4	5	6	7	8	9
Current no.	**Modules**	**SWS hrs**	**Type of course**	**Examinations**		**Accompanying programme credits**	**Weighting for the overall examination grade**	**Credit points (ECTS credits)**
				Type and duration in minutes	**Admission requirement**			
29	**Pre-Internship Seminar**	1	S			LN 1) 5)		2
30	**Internship** (18 weeks)		Pr			PrB 1)		25
31	**Post-Internship Seminar**	1	S			LN 1) 5)		2
	Total	**2**						**29**

3. Overview

1	2	3	4	5	6	7	8	9
Current no.	Modules	SWS hrs	Type of course	**Examinations**		Accompanying programme credits	Weighting for the overall examination grade	Credit points (ECTS credits)
				Type and duration in minutes	Admission requirement			
	First study phase	52					4	60
	Theoretical semesters in the second study phase	88					21	121
	Internship semester	2						29
	Total	**142**					**27**	**210**

Comments:

1) Assessment: "passed" or "failed". The credit certificate must have been passed.

2) Each credit certificate must have been passed.

3) Subject-specific elective compulsory modules are to be covered with modules of 4 SWS hours per week or can be covered by modules of 2 SWS hours per week. If elective compulsory modules with 2 SWS hours are covered, the number of credit certificates to be submitted increases accordingly.
Subject-specific compulsory elective modules have a close subject-related connection to the degree programme and have the following goals in particular:
- to scientifically consolidate knowledge already acquired in the degree programme
- to teach specialist skills in special thematic or interdisciplinary areas that are not covered or only to a lesser extent by compulsory modules.
The detailed qualification goals of the elective compulsory modules result from the respective module descriptions.

4) The credit certificate is alternatively a written examination (90-120 minutes), an oral examination (15-45 minutes) or a presentation (15-30 minutes) with a written paper of 10-15 pages (to be completed during the course of the semester). Further details are defined by the Faculty Council in the study plan.

5) The credit certificate involves the completion of a module-specific number of practical tasks, short written texts or presentations. Of these, a set proportion must be successfully completed in order to pass the credit certificate. Further details are defined by the Faculty Council in the study plan.

6) Practical work or carrying out experiments in the laboratory or conducting programming tasks in the laboratory or PC pool. Further details are defined by the Faculty Council in the study plan.

Type of course

PR	Internship
Prj	Project
S	Seminar
SU	Seminaristic instruction
Ü	Exercise

Type of examination

schrP	Written examination	The written examination is a 90-minute written examination unless explicitly stated otherwise.
mdlP	Oral examination	The oral exam is a 15-minute interview per person unless explicitly stated otherwise.
prP	Practical examination	In the practical examination, the student has to prove that they have mastered the practice-related application of the imparted skills using the example of a "real" problem. The practical examination is 15 minutes long unless explicitly stated otherwise.
StA	Graded creative assignment.	This assignment is a research paper without any oral presentation. According to APO, the research paper should consist of between 3000 to 6000 words and approx. 10 to 20 pages. The research paper is to be written using word processing software.
SA	Seminar research paper	The seminar research paper is a research paper involving no oral presentation. According to APO, the research paper should consist of between 3000 to 6000 words and approx. 10 to 20 pages. The research paper is to be written using word processing software. The oral presentation is 30 to 45 minutes long in total and can also be given during the course of the semester.
Prj	Research project	A research project involves group work in which several students work on a common task in a team. Each student has to contribute individually to the common task, submit a project report and, if necessary, present the results orally. According to APO, the project report should be between 1500 words to 7500 words or approx. 5 to 25 pages, the length of oral presentation is between 15 and 45 minutes according to APO. The project report is to be written using word processing software.
PrB	Internship report	The internship report should provide information about the activities carried out during the internship. The report should be 8 to 25 pages long (without cover pages and indexes). Further details are specified in the study plan. The report is to be written using word processing software.
Koll	**Colloquium**	The colloquium is an oral examination lasting 15-45 minutes, during which the student defends the results of the paper.
BA	Bachelor's thesis	Written thesis of the bachelor's degree programme, 40- 60 pages (without cover sheets, lists and appendices).