

§ 27a Bachelor Study Program Civil Engineering

(1) The Aim of the Study Program

is a Bachelor degree qualifying for a profession with the title "Bachelor of Engineering" (B. Eng). The program trains an application-oriented civil engineer who can be employed in many fields and has a broad basic knowledge in all classical fields of civil engineering and a subject-specific specialization in a chosen field of study (profile formation). In order to achieve practical skills, a large part of the study courses are offered in the form of exercises and project studies with a significant proportion of studentwork.

The teaching of the Bachelor Degree Program Civil Engineering (6 semesters) is practice-oriented and designed to enable students to independently analyze and fully solve planning and design problems within the framework of given work structures. For this purpose, the specialization areas "Structural Engineering" and "Infrastructure Planning" are offered in the advanced study program.

(2) Pre-study Internship

The admission to the bachelor's degree program is based on an admission procedure, the proof of a successfully completed foundation year and a 2-month pre-study internship. In special cases, the pre-study internship can be made up until the end of the second semester. The internship must take place on building sites in construction-related professions. The trainee is to be given as versatile an insight as possible into the individual construction methods as well as into the economic and social aspects of the construction site. Applicants who have completed their vocational training in a construction-related profession will generally be exempted from the pre-study internship.

(3) Scope and Structure of the Study Program

The study program is divided into three stages of study:

- The **first stage of study** (Level 1) includes the 1st and 2nd semester with the basic engineering modules which are standardized for all students.
- The **second stage of study** (Level 2) includes the 3rd and 4th semester with the core civil engineering modules for all students. After the 3rd semester the students choose their specialization.
- The **third stage of study** (Level 3) includes the 5th and 6th semester with the modules of the respective specialization, and mandatory and elective modules to be chosen by each student, as well as the Bachelor thesis integrated in the 6th semester.

The structure and content of the Bachelor Degree program can be found in Attachment 1. This includes the courses required for the Bachelor's Degree Program with the B.Eng. degree as well as the associated prerequisite for examinations and examination papers.

At the end of the first stage of study (Level 1) and at the end of the second stage of study (Level 2), the student should be advised on the basis of his or her academic achievements regarding his or her personal abilities and skills and his or her possible chances of success with regard to a successful completion of studies.

(4) First Stage of Study (Level 1)

The first stage of study is completed when all module examinations of the first two semesters (Module BCE 1.1 to BCE 2.6) have been passed.

Level 1 with 60 CP	2. Semester	BCE 2.4	Building Construction	5	BCE 2.5	Construction Management I	5	BCE 2.6	Geoinformation	5
		BCE 2.1	Mathematics for Engineers II	5	BCE 2.2	Engineering Mechanics II	5	BCE 2.3	Construction Materials II	5
	1. Semester	BCE 1.4	Basics ind Building Construction and Building Physics	5	BCE 1.5	Information Technology and Communication	5	BCE 1.6	Geotechnical Engineering I and Geology	5
		BCE 1.1	Mathematics for Engineers I	5	BCE 1.2	Engineering Mechanics I	5	BCE 1.3	Construction Materials I	5

(5) Second Stage of Study (Level 2)

Transferring to the second stage of study is only possible if at least 6 of the 8 modules of the first stage of study have been successfully completed. During the 3rd semester, the student decides on one of the two offered specializations:

- Structural Engineering
- or
- Infrastructure Planning

In the 4th Semester the specialization starts with one module.

Level 2 with 60 CP	4. Semester	BCE 4.6st	Reinforced Concrete II	5	BCE 4.6n	Hydraulic Engineering II and Urban Water Management	5
		BCE 4.4	Structural Analysis II	5	BCE 4.5	Infrastructure Planning and Traffic Engineering II	5
		BCE 4.1	Building Information Modelling and Health and Safety	5	BCE 4.2	Construction Management II	5
	3. Semester	BCE 3.4	Traffic Engineering I	5	BCE 3.5	Hydraulic Engineering I	5
		BCE 3.1	Structural Analysis I	5	BCE 3.2	Reinforced Concrete I	5
		BCE 3.3	Steel Construction I	5	BCE 4.3	Geotechnical Engineering II	5
	BCE 3.6	Urban Wastewater Management	5				

(6) Third Stage of Study (Level 3)

Before starting the advanced studies (Level 3) in the 5th and 6th semester, the student has decided on one of the two offered specializations. A progression to the third stage of study is only possible if all modules of the first stage of study (Level 1) have been successfully completed and a maximum of two modules from the fourth semester are open. These open modules shall not be in the basic area of the consecutive modules in the chosen specialization.

Level 3 with 60 CP	6. Semester	BCE 6.7	Bachelor Thesis incl. Preparation Seminar		15					
		Specialization Structural Engineering	30	Mandatory and Electives	15	Specialization Infrastructure Planning	30			
		BCE 6.1St	Structural Engineering Project-Study II	10	BCE 6.5	Elective: Interdisciplinary Module	5	BCE 6.1In	Infrastructure Planning Project-Study II	10
		BCE 6.4	Elective: Timber Construction	5	BCE 6.3	Elective: Sustainable Energy	5			
		BCE 6.2	Elective: Geotechnical Engineering III	5						
	5. Semester	BCE 5.4St	Structural Engineering Project-Study I	5	BCE 5.4In	Infrastructure Planning Project-Study I	5			
	BCE 5.3St	Steel Construction II	5	BCE 5.7	Elective: Level 3 Module from other Major	5	BCE 5.3In	Urban Water Management	5	
	BCE 5.2St	Reinforced Concrete III	5	BCE 5.6	Elective: Law and Contract Management	5	BCE 5.2In	Hydraulic Engineering III	5	
	BCE 5.1St	Structural Analysis III and Finite Elements	5	BCE 5.5	Mandatory: Building Information Modelling	5	BCE 5.1In	Traffic Engineering III	5	

The third stage of study (Level 3) includes the five modules of the specialization (with in total 30 CP), the mandatory module BCE 5.5 Building Information Modelling (5 CP) and two elective modules (with in total 10 CP). The Bachelor thesis including the preparation seminar is integrated in the 6th Semester.

For the elective modules (with in total 10 CP) the students can choose to earn credit points from the following modules:

- BCE 5.6 Law and Contract Management (5 CP)
- BCE 6.2 Geotechnical Engineering III (5 CP)
- BCE 6.3 Sustainable Energy (5 CP)
- BCE 6.4 Timber Construction (5 CP)

or from modules of the respective other specialization. Interdisciplinary Modules of other study programs may also be chosen, but these shall be preapproved by the academic director case by case.

(7) Bachelor Thesis

The Bachelor thesis is integrated in the 6th semester, but can only be started after fulfillment of the following **admission requirements**:

1. All modules of the first and second stage of study have been completed.
2. For the advanced module to which the topic of the Bachelor thesis is to be assigned, the prerequisite for the examination of the 5th semester is successfully completed.
3. The preparation seminar for the bachelor thesis has been completed

The **processing time** is 4 months. An extension of the processing time is only possible in exceptional cases and only for a maximum of 1 month. The reasons for the application must be submitted in written form to the first supervisor of the thesis. The reason must be justified. In case of illness, a medical certificate is required.

The bachelor thesis will be presented and defended within a **colloquium**. In addition, an abstract and the presentation shall be submitted to the first supervisor of the thesis.

(8) Excursions

Within the framework of teaching, excursions can be offered in individual subjects or interdisciplinary excursions during and outside the lecture period. They are regarded as compulsory excursions if this is determined by the respective lecturer.

(9) Formation of the module and overall grade

The module grade is determined by the result of the module examination. If partial examinations are conducted within a module, the module grade shall be determined according to the corresponding credit points of the partial examinations. Ungraded examination performances and the credit points assigned to them shall not be taken into account in the calculation of the module grade. For the calculation of the overall grade, the module grades and the Bachelor thesis shall be weighted with the credit points for the modules according to Attachment 1.

(10) Implementation Phase

During the implementation phase of the new bachelor program, the following modules will not be offered: BCE 5.1In, BCE 5.2In, BCE 5.3In, BCE 5.4In, BCE 6.1In. Depending on the demand, the number of students and the funding, these modules will be offered at a later stage.


(11) Entry into effect

This special part of the study and examination regulations will come into effect on 01.March 2021.

Attachment 1:

Content Bachelor Degree Program Civil Engineering

Biberach, 10.02.2021


Professor Dr. André Bleicher
President

Attachment 1: Content Bachelor Study Program Civil Engineering

ECTS-Credit Points	Total CP	1. Sem 2. Sem 3. Sem 4. Sem 5. Sem 6. Sem					
		CP	CP	CP	CP	CP	CP
Level 1 Basics	60	30	30				
Level 2 Basics in Civil Engineering	60			30	30		
Level 3 Specialization Structural Engineering	30					20	10
Level 3 Specialization Infrastructural Planning Engineering	30					20	10
Level 3 Mandatory and Electives	15					10	5
Level 3 Bachelor Thesis	15					3	12
Total ECTS-Credit Points	180	30	30	30	30	33	27

Abbreviations

BCE	Bachelorprogram in Civil Engineering
CP	ECTS-Creditpoints
Pre	Prerequisite for Examination
Ex	Examination
wE	Written Examination
oE	Oral Examination
gSP	graded Seminar Paper
uSP	ungraded Seminar Paper
P	Presentation
L	Laboratory assignment
F	Field assignment

Table 1: Modules of Level 1

No.	Module / Lecture	CP	1. Sem 2. Sem 3. Sem 4. Sem 5. Sem 6. Sem						Examinations			
			CP	CP	CP	CP	CP	CP	Pre	Ex	Min	
Level 1		60										
BCE 1.1	Mathematics for Engineers I	5										
BCE1.1-1	Analytical Geometry		5							wE	90	
BCE 1.2	Engineering Mechanics I	5										
BCE1.2-1	Statics		5							wE	90	
BCE 1.3	Construction Materials I	5										
BCE1.3-1	Construction Materials 1 incl. Construction Chemistry		5						L	wE	90	
BCE 1.4	Basics ind Building Construction and Building Physics	5										
BCE1.4-1	Basics in Building Construction		2							wE	90	
BCE1.4-2	Basics in Building Physics		3									
BCE 1.5	Information Technology and Communication	5										
BCE1.5-1	Component Oriented CAD		3							gSP		
BCE1.5-2	Teambuilding and Leading in Projects		2						uSP			
BCE 1.6	Geotechnical Engineering I and Geology	5										
BCE1.6-1	Engineering Geology		2						L	wE	90	
BCE1.6-2	Geotechnical Engineering I		3						L & F			
BCE 2.1	Mathematics for Engineers II	5										
BCE2.1-1	Analysis			5						wE	90	
BCE 2.2	Engineering Mechanics II	5										
BCE2.2-1	Elastostatics			5						wE	90	
BCE 2.3	Construction Materials II	5										
BCE2.3-1	Construction Materials II incl. Construction Chemistry			5					L	wE	90	
BCE 2.4	Building Construction	5										
BCE2.4-1	Building Construction			5						gSP		
BCE 2.5	Construction Management I	5										
BCE2.5-1	Construction Process Engineering			2						gSP		
BCE2.5-2	Ressource Planning und Scheduling			3								
BCE 2.6	Geoinformation	5										
BCE2.6-1	Surveying			3						wE	90	
BCE2.6-2	Project Geoinformation			2					F,uSP			

Table 2: Modules of Level 2

No.	Module / Lecture	CP	1. Sem 2. Sem 3. Sem 4. Sem 5. Sem 6. Sem						Examinations			
			CP	CP	CP	CP	CP	CP	Pre	Ex	Min	
Level 2		60										
BCE 3.1	Structural Analysis I	5										
BCE3.1-1	Structural Analysis I				5					gSP		
BCE 3.2	Reinforced Concrete I	5										
BCE3.2-1	Reinforced Concrete I				5					uSP	wE	90
BCE 3.3	Steel Construction I	5										
BCE3.3-1	Steel Construction I				5					uSP	wE	90
BCE 3.4	Traffic Engineering I	5										
BCE3.4-1	Traffic Engineering I				5					uSP	wE	90
BCE 3.5	Hydraulic Engineering I	5										
BCE3.5-1	Hydromechanics and Hydraulics				3					uSP	wE	90
BCE3.5-2	Application in Hydraulic Engineering 1				2							
BCE 3.6	Urban Wastewater Management	5										
BCE3.6-2	Urban Drainage				5					gSP		
BCE 4.1	Building Information Modelling and Health and Safety	5										
BCE4.2-1	Basics in Building Information Modelling					3				gSP		
BCE4.2-2	Health and Safety					2				uSP		
BCE 4.2	Construction Management II	5										
BCE4.3-1	Estimation					3				wE	120	
BCE4.3-1	Cost Controlling					2						
BCE 4.3	Geotechnical Engineering II	5										
BCE4.4-1	Geotechnical Engineering II					5				uSP	wE	90
BCE 4.4	Structural Analysis II	5										
BCE4.5St-1	Structural Analysis II					5				uSP	wE	90
BCE 4.5	Infrastructure Planning and Traffic Engineering II	5										
BCE4.5In-1	Traffic Engineering II					5				uSP	wE	90
BCE 4.6St	Reinforced Concrete II	5										
BCE4.6St-1	Reinforced Concrete II					5				uSP	wE	90
BCE 4.6In	Hydraulical Engineering II and Urban Water Management	5										
BCE4.6In-1	Urban Water Supply					3				uSP	wE	90
BCE4.6In-2	Application in Hydraulic Engineering 2					2						

Table 3a: Specialization Structural Engineering in Level 3

No.	Module / Lecture	CP	1. Sem 2. Sem 3. Sem 4. Sem 5. Sem 6. Sem						Examinations			
			CP	CP	CP	CP	CP	CP	Pre	Ex	Min	
Level 3	Specialization Structural Engineering	30										
BCE 5.1St	Structural Analysis III and Finite Elements	5										
BCE5.1St-1	Structural Analysis und Finite Elements							5		uSP	wE	120
BCE 5.2St	Reinforced Concrete III	5										
BCE5.2St-1	Reinforced Concrete III							5		uSP	wE	120
BCE 5.3St	Steel Construction II	5										
BCE5.3St-1	Steel Construction II							5		uSP	wE	120
BCE 5.4St	Structural Engineering Project-Study I	5										
BCE5.4St-1	Structural Engineering Project-Study Part 1							5			gSP, P	
BCE 6.1St	Structural Engineering Project-Study II	10										
BCE6.1St-1	Structural Engineering Project-Study Part 2								10		gSP, P	

Table 3b: Specilization Infrastructure Planning in Level 3

No.	Module / Lecture	CP	1. Sem 2. Sem 3. Sem 4. Sem 5. Sem 6. Sem						Examinations			
			CP	CP	CP	CP	CP	CP	Pre	Ex	Min	
Level 3	Specialization Infrastructure Planning	30										
BCE 5.1In	Traffic Engineering III	5										
BCE5.1In-1	Traffic Engineering III							5		uSP	wE	120
BCE 5.2In	Hydraulic Engineering III	5										
BCE5.2In-1	Hydraulic Engineering III							5		uSP	wE	120
BCE 5.3In	Urban Water Management	5										
BCE5.3In-1	Urban Water Management							5		uSP	wE	120
BCE 5.4In	Infrastructure Planning Project-Study I	5										
BCE5.4In-1	Infrastructure Planning Project-Study Part 1							5			gSP, P	
BCE 6.1In	Infrastructure Planning Project-Study II	10										
BCE6.1In-1	Infrastructure Planning Project-Study Part 2								10		gSP, P	

Table 4: Mandatory and Electives in Level 3

Level 3	Mandatory and Electives	15										
BCE 5.5	Mandatory: Building Information Modelling	5										
BCE5.5-1	Building Information Modeling							5			gSP	
BCE 5.6	Elective: Law and Contract Management	5										
BCE5.6-1	Basics in Puplic and Privat Law						2				wE	90
BCE5.6-2	International Contract Management and FIDIC						3					
BCE 5.7	Elective: Level 3 Module from other Major	5										
BCE5.7-1	Module out of the other Major							5			other	
BCE 6.2	Elective: Geotechnical Engineering III	5										
BCE6.2-1	Geotechnical Engineering III							5		uSP	wE	120
BCE 6.3	Elective: Sustainable Energy	5										
BCE6.3-1	Sustainable Energy Management							3			wE	120
BCE6.3-2	Renewable Energy							2				
BCE 6.4	Elective: Timber Construction	5										
BCE6.4-1	Timber Construction							5		uSP	wE	120
BCE 6.5	Elective: Interdisciplinary Module	5										
BCE6.5-1	Module out of other Bachelor Programs from the University							5			other	
Level 3	Bachelor Thesis	15										
BCE 6.7	Bachelor Thesis incl. Preparation Seminar	15										
BCE6.7-1	Preparation Seminar							3				
BCE6.7-2	Bachelor Thesis incl. Presentation and Defence								12		gSP, P	