

Module Handbook

Bachelor of Civil Engineering

Valid since winter semester 2019/20

The module handbook lists all the compulsory and compulsory/elective advanced modules for the Bachelor's degree program in civil engineering at HAWK. Module descriptions may be revised as required and as decided by the relevant study commission, taking full account of accreditation conditions; in particular, the range of non-compulsory specialization modules (majors) may vary depending on the actual teaching capacity available.

The compulsory modules are mandatory for all civil engineering students and take place as indicated. The modules for the first four semesters are the same and mandatory for all students. Starting in the 5th semester, students are able to refine their profiles by choosing a major:

The specialization modules are offered either in the winter or in the summer semester; the details can be found in the respective module description. Students should take this into account in good time when planning their own individual studies. A total of 4 specialization modules for the major are to be completed; 3 of these are scheduled in the fifth semester of the standard period of study, and another practical or special project is to be completed in the seventh semester in connection with the final thesis. It cannot be guaranteed that all the specialization modules will take place in the specified semester in each case; this applies in particular to modules in which the use of teaching assistants is planned.

The specialization modules are for the most part assigned to the three Bachelor majors of

- Structural civil engineering
- Water and traffic engineering
- Construction operations/construction management

If a specialization (major) is to be shown on the certificate, then 2 specialization modules, a practical or special project as well as the Bachelor's thesis itself must be assigned to this

specialization (a total of 30 credit points). It is also possible to not to choose any specific major; then the specialization modules can be combined as desired.

A basic offer with the required minimum number of specialization modules for the major selected is only ensured in the winter semester; students are not entitled to have any specific specialization modules take place. Specialization modules with fewer than 5 participants cannot be held. These constraints, necessary for the maintenance of an orderly lecture schedule, must be taken into account by the students in the individual planning of their course of study.

It is strongly recommended that students choose the specialization modules, the practical semester, the practical project as well as the final thesis including the corresponding preparation module with great care and that they combine their courses in the best possible way. To do so, students are strongly advised to seek academic counseling.

The Bachelor's degree awarded upon completion of the program is a first professional qualifying degree at Level 1 of the Qualifications Framework for German Higher Education Qualifications. The degree qualifies the student to enter studies at Level 2 (Master's programs).

Module overview:

Module no.	Module name	Credit points/semester							Work load	Course attendance time	Home study	Type of exam
		1	2	3	4	5	6	7				
BA 1-1	Representation, CAD Engineering computer science*	4	2						180	60 30	60 30	ST
BB 1-2	Building materials science 1	6							180	90	90	K2
BB 1-3	Building construction 2, Building physics 1	6							180	90	90	K2
BB 1-4	Technical mechanics, static, structural design	6							180	90	90	K2
BB 1-5	Mathematics 1, Natural sciences	8							240	90	150	K2
BB 2-1	Building construction, Building physics 2		6						180	75	105	ST
BB 2-2	Building materials science 2		6						180	90	90	K2
BB 2-3	Surveying		6						180	90	90	ST
BB 2-4	Technical mechanics, static, structural design 2		6						180	90	90	K2
BB 2-5	Mathematics 2, statistics		4						120	60	60	K2
BB 3-1	Structural engineering project			6					180	60	120	PA
BB 3-2	Traffic and water engineering*			3					180	45 45	45 45	K2
BB 3-3	Urban water management*			3					180	45 45	45 45	K2
BB 3-4	Technical mechanics, static, structural design 3			3					90	45	45	K2
BB 3-5	Basic principles of hydraulics			3					90	30	60	K1
BB 3-6	Geotechnics 1			6					180	90	90	K2
BB 3-7	Solid construction 1, Brickwork construction			6					180	90	90	K2
BB 4-1	Infrastructure project				6				180	60	120	PA
BB 4-4	Building operations 1				6				180	60	120	K2
BB 4-5	Basic principles of steel and wood engineering				6				180	90	90	K2
BB 4-6	Solid construction 2				6				180	60	120	K2
BB 5-1	Structural engineering or water engineering project**					6			180	60	120	PA
BB 5-2	Building operations 2					6			180	60	120	K2
BBV xx	<i>A total of three specialization modules, if a major is chosen, at least two from this area of specialization</i>					6			180	60	120	indiv.
BBV xx						6			180	60	120	indiv.
BBV xx						6			180	60	120	indiv.

Module no.	Module name	Credit points/semester						Work load	Course attendance time	Home study	Type of exam
BB 6-1	Practical training phase						30	750	10	740	ST
BBV 98	Practical training project***						6	180	3	177	ST
BB 7-1	Individual profile studies (HAWK plus)						6	180	60	120	indiv.
BB 7-3	Module for preparation of the final thesis						6	180	3	177	ST
BB 7-4	Bachelor's thesis						12	360	6	354	AA

* more than one semester

** For students majoring in Structural engineering or Water and Traffic engineering, the project BB 5-1 belonging to the specialization is obligatory. If majoring in Construction operations/construction management or not choosing a major, students must choose between the two topics offered in Project BB 5-1.

*** for the chosen major, can be replaced by another specialization module for this major (if available); if no major is chosen: freely selectable BBV-module

Compulsory elective modules/majors modules

Module no.	Module name	Credit points	Work load	Course attendance time	Home study	Type of exam Weighting
Majors modules in general						
BBV-06	Geotechnics 2	6	180	60	120	K2
BBV-07	Mudbrick building	6	180	60	120	ST
BBV-08	Building damages and redevelopment	6	180	60	120	R
BBV-09	Higher concrete technology	6	180	60	120	K2
BBV-98	Practical training project	6	180	3	177	ST
BBV-99	Special project	6	180	60	120	ST
Major: Structural engineering						
BBV-33	Special areas of solid construction and FEM	6	180	60	120	ST+K2 (50% each)
BBV-34	Prestressed concrete and prefabricated construction 1	6	180	60	120	K2
BBV-36	Basic Principles of bridge building	6	180	60	120	ST
BBV-37	Steel engineering	6	180	60	120	K2
BBV-38	Wood engineering	6	180	60	120	K2
Major: Water and traffic engineering						
BBV-62	Water management and water engineering	6	180	60	120	K2
BBV-63	Water engineering in actual practice	6	180	60	120	ST
BBV-64	Drinking water and wastewater networks	6	180	60	120	K2
BBV-66	Drinking water, wastewater, waste in developing countries	6	180	60	120	R
BBV-67	Streets and roadways	6	180	60	120	ST
BBV-68	Designing traffic facilities	6	180	60	120	ST

Module no.	Module name	Credit points	Work load	Course attendance time	Home study	Type of exam Weighting
BBV-69	Railroad construction	6	180	60	120	ST
BBV-70	Traffic engineering in actual practice	6	180	60	120	ST
BBV-71	Current topics from streets and roadways	6	180	60	120	ST+K1 (50% each)
Major: Building operations/building management						
BBV-81	Building operations 3	6	180	60	120	K2
BBV-82	Building supervision and site management	6	180	60	120	K1
BBV-83	Project management	6	180	60	120	ST
BBV-84	Safety and health protection during construction work	6	180	60	120	K2

Allocation to course of study Bachelor of Civil Engineering		Module name Descriptive geometry, CAD, Engineering computer science	Course code BA 1-1	Internal	Last updated 21.07.2021	
Study semester 1st+2nd semester	Offered in WS + SS		Credit points 6 CP		Semester week hours 6 SWS	
Allocation to study specialization All			Type of teaching, group size, if applicable Lecture, exercises and group exercises		Language of instruction German	
Can also be credited to study program -		Responsible for module Prof. Dr.-Ing. Martin Klaus				
Requirements according to examination regulations			Recommended prerequisites			
Study/examination achievements/ examination types Student research paper without colloquium -			If applicable, weighting of the study/examination achievements Semester-spanning module; DesGeo and CAD in 1st semester; 1/3 DesGeo; 1/3 CAD; 1/3 Engineering computer science			
Module objectives/desired learning outcomes: Descriptive geometry and CAD Students develop the ability to visualize three-dimensional solids, derive sectional figures, and digitize simple construction geometry using commercial software. They are able to picture spatial objects and are able to make arbitrary sections of three-dimensional bodies. They have developed or improved ability to visualize spatially. They are able to produce simple floor plan, view and sectional drawings of building objects using Autocad software. Engineering computer science Students learn the basics of programming based on VBA and drawing design plans using commercial CAD software. They know how computers basically operate, the fundamentals of programming and are able to use the Excel spreadsheet program and add their own simple VBA scripts. They have improved their analytical, structured way of thinking. They are able to create construction drawings using commercial CAD construction software.						
Contents: Descriptive geometry and CAD - Descriptive techniques and descriptive geometry - Projection techniques - Design exercises using simple geometric figures - Basic principles of using CAD - Exercises in using CAD in the building industry Engineering computer science - How computers work - Basic principles of programming - Using spreadsheet programs, including the basics of VBA programming - Using commercial software to create position and reinforcement plans						
Course attendance time (in mandatory hours - LVS)			Workload (in hours)			
Prof. Dr. M. Klaus		2 LVS	Course attendance time		Home study	
Dipl.-Ing. Erika Puls, M.A.		6 LVS	Lecture	30 h	Course accompanying and exam preparation	90 h
Dipl.-Ing. Erika Puls, M.A.		3 LVS	Exercise	30 h		
Assistant lecturer		2 LVS	Other	30 h		
Total classroom time		13 LVS	Total workload			180 h
Optional extra						
Literature is listed in Stud.IP						

Allocation to course of study Bachelor of Civil Engineering		Module name Building materials science 1	Course code BB 1-2	Internal	Last updated 17.12.2020
Study semester 1st semester	Offered in WS		Credit points 6 CP		Semester week hours 6 SWS
Allocation to study specialization All			Type of teaching, group size, if applicable Lecture, practical lab training in groups		
Can also be credited to study program -		Responsible for module Prof. Dr.-Ing. Iris Marquardt	Language of instruction German		
Requirements according to examination regulations			Recommended prerequisites		
Study/examination achievements/ examination types Written examination (K2) -			If applicable, weighting of the study/examination achievements		

Module objectives/desired learning outcomes:

Students acquire basic knowledge of the properties of building materials and their behavior under different stresses. They learn the basic principles for the appropriate use of building materials with regard to load-bearing behavior and durability, as well as building physics requirements. They acquire practical experience in the standard-compliant performance and evaluation of material tests on concrete constituents as well as on fresh and hardened concretes. They are enabled to independently expand and update learned knowledge from the areas covered.

Contents:

1. Basic studies: Technical building regulations; systematics of building materials and building material properties; basics of material testing and quality assurance; microstructure and structure of building materials; mechanical behavior; behavior towards liquids and gases; thermal behavior; fire behavior
2. Mineral binding agents: Cement, plaster, lime, magnesia binder, clay
3. Raw materials for concrete production
4. Concrete: Classification of fresh and hardened concretes; test methods; mixtures for normal concretes; production, processing and quality assurance; strength and deformation behavior of normal concrete; durability; concretes for special requirements; mortars

Course attendance time (in mandatory hours - LVS)		Workload (in hours)			
Prof. Dr.-Ing. Iris Marquardt	6 LVS	Course attendance time		Home study	
	-	Lecture	80 h	Course accompanying and exam preparation	90 h
	-	Exercise	10 h		
	-	Other			
Total classroom time	6 LVS	Total workload			180 h
Optional extra					
Literature is listed in Stud.IP					

Allocation to course of study Bachelor of Civil Engineering		Module name Mathematics 1 and Natural sciences		Course code BB 1-5	Internal	Last updated 04.07.2019
Study semester 1st semester	Offered in WS			Credit points 8 CP	Semester week hours 6 SWS	
Allocation to study specialization -		Responsible for module Prof. Dr.-Ing. Axel Stödter		Type of teaching, group size, if applicable Lecture		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations			Recommended prerequisites			
Study/examination achievements/ examination types Written examination (K2) -			If applicable, weighting of the study/examination achievements 2/3 mathematics, 1/3 natural sciences			
Module objectives/desired learning outcomes: - Students master mathematical techniques, procedures and algorithms as a prerequisite for solving problems in the field of civil engineering. - Students acquire the structured exact thinking and working methods of mathematics as one of the skills of engineers. - They are confident in the application of basic knowledge from the natural sciences of physics, chemistry and biology as a prerequisite for solving interdisciplinary engineering problems.						
Contents: - Determinants and matrices, equation systems - Vector concept, vector operations, vector algebra - Functions, types of functions, properties of functions, limits - Differential calculus with applications in geometry and technology - Physical unit systems - Basic principles of thermal dynamics - Electricity - Atomic structure, bond types - Stoichiometric calculations - Acid-base equilibria, redox reactions - Classification and growth of (micro) organisms - Biochemical metabolism						
Course attendance time (in mandatory hours - LVS)			Workload (in hours)			
Prof. Dr. A. Stödter	2 LVS	Course attendance time		Home study		
Prof. Dr. G. Bahre	2 LVS	Lecture	90 h	Course accompanying and exam preparation		150 h
Assistant lecturer	2 LVS	Exercise				
	-	Other				
Total classroom time	6 LVS	Total workload				240 h
Optional extra						
Tutorial						
Literature is listed in Stud.IP						

Allocation to course of study Bachelor of Civil Engineering		Module name Building construction, Building physics 2		Course code BB 2-1	Internal	Last updated 22.02.2019	
Study semester 2nd semester	Offered in SS			Credit points 6 CP		Semester week hours 5 SWS	
Allocation to study specialization -		Responsible for module Prof. Dr.-Ing. Peter Leimer		Type of teaching, group size, if applicable Lecture with integrated exercises			
Can also be credited to study program -				Language of instruction German			
Requirements according to examination regulations			Recommended prerequisites				
Study/examination achievements/ examination types Student research paper without colloquium -			If applicable, weighting of the study/examination achievements				
Module objectives/desired learning outcomes: - Students acquire basic knowledge of designing, planning, working through and drawing a construction project. - They are able to recognize the structural, design, functional, economic and energy requirements of construction in the overall context using the example of a construction task. - They are enabled to develop their own learning strategies and conduct independent research.							
Contents: Basic principles of planning: Basic drafting, building regulations code, calculation of area and space Building construction 2: Basic principles of drafting and designing Development of a planning concept for a building under structural and physical boundary conditions Building physics 2 Energy and environment, basic principles of energy-saving thermal insulation according to EnEV. Basic principles of acoustics, sound propagation and sound insulation Basic principles of fire safety Calculations with building physics computer programs (in groups) to prove energy-saving construction and soundproofing							
Course attendance time (in mandatory hours - LVS)			Workload (in hours)				
Prof. Dr. P. Leimer		4 LVS	Course attendance time		Home study		
Assistant lecturer		4 LVS	Lecture	60 h	Course accompanying and exam preparation		105 h
		-	Exercise	15 h			
		-	Other				
Total classroom time		8 LVS	Total workload			180 h	
Optional extra							
Literature is listed in Stud.IP							

Allocation to course of study Bachelor of Civil Engineering		Module name Building materials science 2	Course code BB 2-2	Internal	Last updated 17.12.2020
Study semester 2nd semester	Offered in SS		Credit points 6 CP	Semester week hours 6 SWS	
Allocation to study specialization All		Responsible for module Prof. Dr.-Ing. Iris Marquardt	Type of teaching, group size, if applicable Lecture, practical lab training in groups		
Can also be credited to study program -			Language of instruction German		
Requirements according to examination regulations			Recommended prerequisites Building materials science 1 (BB1-2)		
Study/examination achievements/ examination types Written examination (K2) -			If applicable, weighting of the study/examination achievements		

Module objectives/desired learning outcomes:

Students learn the basic principles for the use of metallic, inorganic and organic building materials with regard to load-bearing behavior and durability as well as building physics requirements.

They acquire practical experience in standard-compliant performance and evaluation of material tests on metal, bitumen and asphalt as well as wood and wood-based materials.

They are enabled to independently expand and update learned knowledge from the areas covered.

Contents:

1. Metallic building materials: Basic principles of metallurgy, steel and cast iron, structural steels, reinforcing steels, prestressing steels, welding, non-ferrous metals, corrosion and corrosion protection of construction metals
2. Wood and wood-based materials
3. Bitumen and asphalt
4. Synthetic materials in the building industry
5. Natural and artificial stones: Composition, properties, areas of application
6. Masonry/brickwork
7. Building glass

Course attendance time (in mandatory hours - LVS)		Workload (in hours)			
Prof. Dr.-Ing. Iris Marquardt	6 LVS	Course attendance time		Home study	
	-	Lecture	80 h	Course accompanying and exam preparation	90 h
	-	Exercise	10 h		
	-	Other			
Total classroom time	6 LVS	Total workload			180 h

Optional extra

Literature

is listed in Stud.IP

Allocation to course of study Bachelor of Civil Engineering		Module name Surveying	Course code BB 2-3	Internal	Last updated 01.09.2018
Study semester 2nd semester	Offered in SS		Credit points 6 CP		Semester week hours 6 SWS
Allocation to study specialization -		Responsible for module Prof. Dr.-Ing. Axel Stödter	Type of teaching, group size, if applicable Lectures with practical exercises		
Can also be credited to study program Bachelor of Wood Engineering			Language of instruction German		
Requirements according to examination regulations		Recommended prerequisites			
Study/examination achievements/ examination types Student research paper without colloquium -		If applicable, weighting of the study/examination achievements			

Module objectives/desired learning outcomes:

Students will independently apply appropriate procedures to the methods listed below using concrete and practical examples and compile or map and draw evaluations of professional practice. They should be able to estimate required accuracies and increase them, if necessary. They are to acquire practical knowledge with special reference to the project study in the field of planning and construction as well as for inventories for redevelopment objects.

Contents:

- Basic principles of surveying
- Building survey
- Staking out buildings
- Leveling
- Recording the profile
- Determining area and mass
- Trigonometry, introduction to tachymetry, traverse line, tachymetric survey
- Routing elements for road construction, etc.

Course attendance time (in mandatory hours - LVS)		Workload (in hours)			
Prof. Dr.-Ing. Axel Stödter	6 LVS	Course attendance time		Home study	
Dipl.-Ing. S. Wethkamp	4 LVS	Lecture	30 h	Course accompanying and exam preparation	90 h
	-	Exercise	60 h		
	-	Other			
Total classroom time	10 LVS	Total workload			180 h

Optional extra

Literature

is listed in Stud.IP

Allocation to course of study Bachelor of Civil Engineering		Module name Technical mechanics, Static, Structural design 2		Course code BB 2-4	Internal	Last updated 01.09.2018	
Study semester 2nd semester	Offered in SS	Responsible for module Prof. Dr.-Ing. Stefanie Steppeler		Credit points 6 CP		Semester week hours 6 SWS	
Allocation to study specialization All				Type of teaching, group size, if applicable Lecture with integrated exercises			
Can also be credited to study program -				Language of instruction German			
Requirements according to examination regulations			Recommended prerequisites BB 1-4				
Study/examination achievements/ examination types Written examination (K2) -			If applicable, weighting of the study/examination achievements				
Module objectives/desired learning outcomes:							
Students • learn to calculate support reactions and internal forces of statically determinate plane systems and to represent the state lines. • acquire skills for determining the internal stress of parts of the structure. • learn how to determine stresses due to normal force, shear force, bending and torsion. • acquire the prerequisites for the material-dependent design and dimensioning of load-bearing structures and structural parts.							
Contents:							
• Support reactions and internal forces of statically determinate plane structures • Stresses, strain, sliding, material laws • Cross-section values • Normal stresses due to normal force and bending • Shear stresses due to shear force and torsion • Normal stresses with failure in the tensile zone • Stress states, principal stresses and strength hypotheses							
Course attendance time (in mandatory hours - LVS)			Workload (in hours)				
Prof. Dr. S. Steppeler		6 LVS	Course attendance time		Home study		
		-	Lecture	75 h	Course accompanying and exam preparation 90 h		
		-	Exercise	15 h			
		-	Other				
Total classroom time		6 LVS	Total workload			180 h	
Optional extra							
Tutorial							
Literature is listed in Stud.IP							

Allocation to course of study Bachelor of Civil Engineering		Module name Mathematics 2 with statistics		Course code BB 2-5	Internal	Last updated 04.07.2019
Study semester 2nd semester	Offered in SS			Credit points 4 CP	Semester week hours 4 SWS	
Allocation to study specialization -		Responsible for module Prof. Dr.-Ing. Axel Stödter		Type of teaching, group size, if applicable Lecture		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations				Recommended prerequisites		
Study/examination achievements/ examination types Written examination (K2) -				If applicable, weighting of the study/examination achievements		
Module objectives/desired learning outcomes: - Students master mathematical techniques, procedures and algorithms as a prerequisite for solving problems in the field of civil engineering. - Students acquire the structured exact thinking and working methods of mathematics as one of the skills of engineers.						
Contents: - Differential calculus with applications in geometry and technology (continued) - Ordinary and partial differential equations (introduction) - Integral calculus with applications in geometry and technology - Sequences and series - Probability calculation and statistics						
Course attendance time (in mandatory hours - LVS)				Workload (in hours)		
Prof. Dr. A. Stödter		2 LVS	Course attendance time		Home study	
N.N.		2 LVS	Lecture	60 h	Course accompanying and exam preparation 60 h	
		-	Exercise			
		-	Other			
Total classroom time		4 LVS	Total workload			120 h
Optional extra						
Literature is listed in Stud.IP						

Allocation to course of study Bachelor of Civil Engineering		Module name Traffic and water engineering	Course code BB 3-2	Internal	Last updated 01.09.2018
Study semester 3rd + 4th semester	Offered in WS + SS		Credit points 6 CP		Semester week hours 6 SWS
Allocation to study specialization -			Type of teaching, group size, if applicable Lecture		
Can also be credited to study program -		Responsible for module Prof. Dr.-Ing. Axel Stödter	Language of instruction German		
Requirements according to examination regulations			Recommended prerequisites		
Study/examination achievements/ examination types Written examination (K2) -		If applicable, weighting of the study/examination achievements Traffic engineering (50%) Water engineering (50%)			
Module objectives/desired learning outcomes: - Basic knowledge of urban planning contexts - Knowledge of the theoretical development of traffic concepts - Skills in the presentation and analysis of basic urban planning and traffic concepts - Knowledge of the integrative structure of traffic planning - Ability to develop the design of the road space - Basic knowledge of the development of authoritative principles in hydraulic engineering - Basic understanding of viewpoints on water management planning - Knowledge of the basic elements of hydraulic engineering					
Contents: In the winter semester: - Urban and traffic history, basic concepts and planning law - Planning principles, organizational forms and regulations - Urban and traffic models, basic principles of draft and design - Current condition survey, planning and design of traffic types In the summer semester: - History of water engineering and water management - River engineering and river structures - Applications in hydraulics - Hydrometry					
Course attendance time (in mandatory hours - LVS)		Workload (in hours)			
Prof. Dr. A. Stödter	3 LVS	Course attendance time		Home study	
Dipl.-Ing. Anja Markwart	3 LVS	Lecture	90 h	Course accompanying and exam preparation	90 h
	-	Exercise			
	-	Other			
Total classroom time	6 LVS	Total workload			180 h
Optional extra					
Literature is listed in Stud.IP					

Allocation to course of study Bachelor of Civil Engineering		Module name Urban water management		Course code BB 3-3	Internal	Last updated 30.07.2021
Study semester 3rd + 4th semester	Offered in WS + SS			Credit points 6 CP	Semester week hours 6 SWS	
Allocation to study specialization All		Responsible for module Prof. Dr.-Ing. Günther Bahre		Type of teaching, group size, if applicable Lecture with exercises		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations			Recommended prerequisites Successful completion of module BB 1-5			
Study/examination achievements/ examination types Written examination (K2) -			If applicable, weighting of the study/examination achievements			
Module objectives/desired learning outcomes: • Knowledge of drainage systems • Identification and solving of stormwater treatment and drainage problems • Getting to know parameters for stress assessment • Expansion of basic scientific knowledge for use in urban water management • Learning about procedural basics of treatment technology • Development of dimensioning bases and application of dimensioning techniques for use in drinking water and wastewater treatment • Recognition and assessment of areas of application and application limits of the treatment processes used, development of target-oriented process chains						
Contents: Part I (in the winter semester) • Drainage systems • Rainwater treatment • Basic physical, chemical, and biological principles and processes of water, wastewater, and waste treatment • Precipitation/flocculation, filtration, bacterial count reduction • Mechanical processes (rake, grit trap, primary treatment) Part II (in the summer semester) • Processes for biological / chemical wastewater treatment (incl. elimination of nitrogen and phosphorus) • Process for the treatment of residual materials produced in a sewage treatment plant, sludge treatment in particular • Dimensioning of the above mentioned processes and procedural steps						
Course attendance time (in mandatory hours - LVS)			Workload (in hours)			
Prof. Dr. G. Bahre	6 LVS	Course attendance time		Home study		
	-	Lecture	85 h	Course accompanying and exam preparation		90 h
	-	Exercise	5 h			
	-	Other				
Total classroom time	6 LVS	Total workload				180 h
Optional extra						
Exercise units, tutorial, practical lab training						
Literature is listed in Stud.IP						

Allocation to course of study Bachelor of Civil Engineering		Module name Technical mechanics, Static 3, Structural engineering 3	Course code BB 3-4	Internal	Last updated 31.05.2021
Study semester 3rd semester	Offered in WS		Credit points 3 CP		Semester week hours 3 SWS
Allocation to study specialization All			Type of teaching, group size, if applicable Lecture with integrated exercises		
Can also be credited to study program -		Responsible for module Prof. Dr.-Ing. Michael Hansen	Language of instruction German		
Requirements according to examination regulations			Recommended prerequisites BB 1-4, BB 2-4		
Study/examination achievements/ examination types Written examination (K2) -		If applicable, weighting of the study/examination achievements			

Module objectives/desired learning outcomes:

Students are able to predict the deformation behavior of structures and determine deformation quantities correctly in terms of quality. They are able to determine the internal forces in statically indeterminate beam structures as a result of load and constraint actions. In addition, they are able to assess the influence of deformations on the load-bearing behavior and have basic knowledge in the analysis of the structural behavior in the case of locally variable actions.

Contents:

- Kinematics
- Individual deformations and bending lines
- Determination of support reactions and internal forces of statically indeterminate plane systems with the force magnitude method
- Basic principles of the stability theory
- Basic principles of determining influence lines

Course attendance time (in mandatory hours - LVS)		Workload (in hours)			
Prof. Dr.-Ing. habil. M. Hansen	3 LVS	Course attendance time		Home study	
	-	Lecture	25 h	Course accompanying and exam preparation	45 h
	-	Exercise	20 h		
	-	Other			
Total classroom time	3 LVS	Total workload			90 h

Optional extra

Tutorial

Literature

is listed in Stud.IP

Allocation to course of study Bachelor of Civil Engineering		Basic principles of hydraulics		Course code BB 3-5	Internal	Last updated 01.09.2018
Study semester 3rd semester	Offered in WS			Credit points 3 CP		Semester week hours 2 SWS
Allocation to study specialization -				Type of teaching, group size, if applicable Lecture		
Can also be credited to study program -		Responsible for module Prof. Dr.-Ing. Axel Stödter		Language of instruction German		
Requirements according to examination regulations				Recommended prerequisites		
Study/examination achievements/ examination types Written examination (K1) -		If applicable, weighting of the study/examination achievements				
Module objectives/desired learning outcomes: - Students acquire basic knowledge of hydromechanics (hydrostatics with buoyancy, groundwater hydraulics, pipe and channel hydraulics). - They are able to solve basic problems in the fields of hydrostatics, hydrodynamics with pipe hydraulics, and flow hydraulics.						
Contents: - Determining water pressure, buoyancy, swimming stability - Groundwater - Water movement in pipes - Water movement in channels at weirs and constrictions, outflow from openings						
Course attendance time (in mandatory hours - LVS)		Workload (in hours)				
Prof. Dr. A. Stödter	2 LVS	Course attendance time		Home study		
	-	Lecture	30 h	Course accompanying and exam preparation		60 h
	-	Exercise				
	-	Other				
Total classroom time	2 LVS	Total workload				90 h
Optional extra						
Literature is listed in Stud.IP						

Allocation to course of study Bachelor of Civil Engineering		Module name Geotechnics 1	Course code BB 3-6	Internal	Last updated 01.11.2018
Study semester 3rd semester	Offered in WS		Credit points 6 CP		Semester week hours 6 SWS
Allocation to study specialization All			Type of teaching, group size, if applicable Lecture with exercises		
Can also be credited to study program -		Responsible for module Prof. Dr.-Ing. Georg Maybaum	Language of instruction German		
Requirements according to examination regulations			Recommended prerequisites		
Study/examination achievements/ examination types Written examination (K2) -		If applicable, weighting of the study/examination achievements			

Module objectives/desired learning outcomes:

- Basic knowledge in the recognition and for the classification of soils
- Basic knowledge of soil investigation and field and laboratory determination of important soil mechanical properties
- Ability to estimate the load-bearing behavior of soils and the effect of the subsoil in relation to structures
- Ability to design shallow foundations
- Knowledge of retaining structures (underpinning, bank protection, retaining walls, etc.)
- Knowledge on how to build excavation pits

Contents:

Formation of soils and methods of soil investigation

- Classification of soils according to different categories, load-bearing behavior of the foundation soil
- Relevant soil mechanical properties and methods for their determination
- Flat and area foundations, their load-bearing behavior and calculation
- Introduction to the earth pressure theory, load determination (water and earth pressure)
- Method of securing the excavation pit and its calculation
- Procedure for calculating stress and settlement

Course attendance time (in mandatory hours - LVS)		Workload (in hours)			
Prof. Dr. G. Maybaum	6 LVS	Course attendance time		Home study	
	-	Lecture	60 h	Course accompanying and exam preparation	90 h
	-	Exercise	30 h		
	-	Other			
Total classroom time	6 LVS	Total workload			180 h

Optional extra

Literature

is listed in Stud.IP

Allocation to course of study Bachelor of Civil Engineering		Module name Solid construction 1, Brickwork/masonry construction		Course code BB 3-7	Internal	Last updated 31.05.2021
Study semester 3rd semester	Offered in WS			Credit points 6 CP		Semester week hours 6 SWS
Allocation to study specialization All		Responsible for module Prof. Dr.-Ing. Michael Hansen		Type of teaching, group size, if applicable Lecture with exercise		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations			Recommended prerequisites BB 1-4, BB 2-4, BB 1-2, BB 2-2			
Study/examination achievements/ examination types Written examination (K2) -			If applicable, weighting of the study/examination achievements			
Module objectives/desired learning outcomes: Basic principles of cross-section dimensioning and design under normal force, bending force and shear force loads Students know the basic principles of reinforced concrete design in uncracked and cracked conditions. They are able to perform a cross-section design under normal force and bending stress and to determine longitudinal bending reinforcement on the basis of this. In addition, they understand the load-bearing mechanisms in reinforced concrete construction and can also calculate the reinforcement resulting from shear force loading. Students know how to arrange the determined reinforcement and are able to sketch it. What's more, they know how to design masonry structures and how to execute them correctly from a structural and design point of view.						
Contents: • Reinforced concrete construction: - Introduction to the safety concept and to the basics of reinforced concrete construction - Basic principles of bending and shear force design of reinforced concrete components - Dimensioning and construction of standard structural elements (beams, uniaxially spanned ceilings, ...) - Design rules and basics of reinforcement design • Masonry/brickwork: Design of masonry structures under normal force, bending and shear loads						
Course attendance time (in mandatory hours - LVS)			Workload (in hours)			
Prof. Dr.-Ing. habil. M. Hansen		6 LVS	Course attendance time		Home study	
		-	Lecture	45 h	Course accompanying and exam preparation 90 h	
		-	Exercise	45 h		
		-	Other			
Total classroom time		6 LVS	Total workload			180 h
Optional extra Tutorial						
Literature is listed in Stud.IP						

Allocation to course of study Bachelor of Civil Engineering		Module name Infrastructure project		Course code BB 4-1	Internal	Last updated 04.08.2018
Study semester 4th semester	Offered in SS			Credit points 6 CP	Semester week hours 4 SWS	
Allocation to study specialization -		Responsible for module N.N.		Type of teaching, group size, if applicable Project work with supervision in groups		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations			Recommended prerequisites Participation in module BB 3-2 Traffic and water engineering			
Study/examination achievements/ examination types Project work with colloquium -			If applicable, weighting of the study/examination achievements			
Module objectives/desired learning outcomes: - System-compatible application of knowledge of urban and traffic planning - Ability to define a goal and the strategic planning process - Ability to manage groups and present results - Ability to determine the basis and develop variants - Ability to engage in technical discussion, evaluation of planning alternatives, and decision-making for the development of urban and transportation concepts appropriate to the site - Ability to draft concepts in text and drawings						
Contents: - Target framework and failure analysis - Inventory taking - Deriving general measures - Site-specific measures with impact analysis - Public relations concepts - Development of computer-aided planning and design documents						
Course attendance time (in mandatory hours - LVS)		Workload (in hours)				
N.N.	4 LVS	Course attendance time		Home study		
Dipl.-Ing. Anja Markwart	2 LVS	Lecture	30 h	Course accompanying and exam preparation		120 h
	-	Exercise	30 h			
	-	Other				
Total classroom time	6 LVS	Total workload				180 h
Optional extra						
Literature is listed in Stud.IP						

Allocation to course of study Bachelor of Civil Engineering		Module name Project in Structural civil engineering		Course code BB 5-1	Internal	Last updated 21.06.2021	
Study semester 5th semester	Offered in WS	Responsible for module Prof. Dr.-Ing. Martin Klaus		Credit points 6 CP		Semester week hours 4 SWS	
Allocation to study specialization Structural civil engineering				Type of teaching, group size, if applicable Project work with supervision in groups			
Can also be credited to study program -				Language of instruction German			
Requirements according to examination regulations			Recommended prerequisites Project in 3rd semester (BB 3-1);BB 3-4; BB 4-6;BB 4-5;BBV-33;BBV-37				
Study/examination achievements/ examination types Project work with colloquium -			If applicable, weighting of the study/examination achievements				
Module objectives/desired learning outcomes:							
Students are trained in the design and calculation of structural frameworks for building construction on the basis of a project task. The main focus is on the independent processing of a structural design with explanation/justification. The application of previously learned expertise from various disciplines (across construction types) is combined within the overall task. The calculation of the fee for engineering services of the structural engineer in building construction according to HOAI Students deepen their understanding of load transfer in both vertical and horizontal directions in a building. They are able to develop and calculate different structural solutions for a building based on the usage requirements. They are able to independently create position plans and reinforcement drawings based on their calculation results. Within a project group, they develop their own team, conflict, facilitation and leadership skills. They are able to conduct literature research and to expand their knowledge independently and then to present their findings.							
Contents:							
- Meetings in project teams - Design of a building from a structural point of view in solid and/or steel construction - Calculation of the fee for the structural engineer according to HOAI - Static-structural drafting, including pre-dimensioning of simple building parts - Development of structural variants (concrete construction/masonry construction/steel construction) - Breakdown of a complete building into components taking into account the vertical and horizontal load transfer - Creation of a verifiable static calculation - Simple geotechnical verifications for the foundation components - More detailed proofs for building bracing - Preparation of construction drawings in solid and steel construction (ready for execution according to HOAI)							
Course attendance time (in mandatory hours - LVS)			Workload (in hours)				
Prof. Dr. M. Klaus		4 LVS	Course attendance time		Home study		
N.N.		2 LVS	Lecture	15 h	Course accompanying and exam preparation		
Iannis Kramer, B.Eng.		2 LVS	Exercise	45 h			
		-	Other				
Total classroom time		8 LVS	Total workload			180 h	
Optional extra							
Literature is listed in Stud.IP							

Allocation to course of study Bachelor of Civil Engineering		Module name Advanced project in water engineering		Course code BB 5-1	Internal	Last updated 01.09.2018
Study semester 5th semester	Offered in WS			Credit points 6 CP	Semester week hours 4 SWS	
Allocation to study specialization Water and traffic engineering		Responsible for module Prof. Dr.-Ing. Günther Bahre		Type of teaching, group size, if applicable Project work with supervision in groups		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations			Recommended prerequisites Good knowledge of CAD			
Study/examination achievements/ examination types Project work with colloquium -			If applicable, weighting of the study/examination achievements			
Module objectives/desired learning outcomes: • Application-oriented knowledge of water law • Methodical knowledge of planning and approval procedures • Moderation of the process flow • Ability to prepare a draft permit under the water law						
Contents: • Water law, emission law, administrative procedures • Simulation game for the preparation of a water law approval procedure • Preparation of a draft permit for the reconstruction and extension of a sewage treatment plant with the elements - Explanatory report - Technical calculations - Drawings (site plan, floor plans, sections, hydraulic longitudinal section, P&I flow diagram) Group work Regular attendance is required as part of the weekly project work.						
Course attendance time (in mandatory hours - LVS)		Workload (in hours)				
Prof. Dr. G. Bahre	6 LVS	Course attendance time		Home study		
	-	Lecture	10 h	Course accompanying and exam preparation		120 h
	-	Exercise	50 h			
	-	Other				
Total classroom time	6 LVS	Total workload				180 h
Optional extra						
Project-accompanying supervision, tutorial						
Literature is listed in Stud.IP						

Allocation to course of study Bachelor of Civil Engineering		Module name Practical training phase		Course code BB 6-1	Internal	Last updated 01.09.2018
Study semester 6th semester	Offered in WS + SS			Credit points 30 CP	Semester week hours n/a	
Allocation to study specialization All		Responsible for module Prof. Dr. Ing. Mario Hanusrichter		Type of teaching, group size, if applicable Pre- and post-seminar, practical phase		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations All CP from semesters 1+2, a further 45 CP from semesters 3 to 5			Recommended prerequisites			
Study/examination achievements/ examination types Seminar paper Student research paper without colloquium			If applicable, weighting of the study/examination achievements 15 weeks of practical training (translates as 24 CP), pass / fail StA (report) and seminar paper (translates as 6 CP) will be graded			
Module objectives/desired learning outcomes: - Application of previously acquired knowledge and skills in everyday professional practice, engineering work - Gain competencies in an area that the student has designated for future employment - Working in the training center is designed to give students some orientation for finding a topic for their Bachelor's thesis - Stimulation to link non-specialist content with the student's own training to date - Development of independent decision-making ability - Presentation of the professional and social competence acquired during the course of study.						
Contents: Practical phase supervised by the Civil Engineering program of the Faculty of Architecture, Construction and Conservation in a company (training facility) of the construction trade/industry, in an engineering or architectural office, in a professional authority, in a professional association, or comparable The company/institution must ensure that engineering supervision is possible during the practical phase, i.e. at least 1 engineer must provide supervision in the company / office / in the public authority / in the association (i.e. training facility). The regulations for the practical phase according to the Praxisphasenordnung (PraxisO) must be observed.						
Course attendance time (in mandatory hours - LVS)			Workload (in hours)			
entire teaching staff, per student	0.1 LVS	Course attendance time		Home study		
	-	Lecture		Course accompanying and exam preparation		740 h
	-	Exercise				
	-	Other	10 h			
Total classroom time	0.1 LVS	Total workload				750 h
Optional extra						
Literature is listed in Stud.IP						

Allocation to course of study Bachelor of Civil Engineering		Module name Individual profile studies		Course code BB 7-1	Internal	Last updated 01.09.2018
Study semester 7th semester	Offered in WS + SS			Credit points 6 CP		Semester week hours 4 SWS
Allocation to study specialization All		Responsible for module HAWK plus		Type of teaching, group size, if applicable Course-dependent, according to information from HAWK plus		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations				Recommended prerequisites		
Study/examination achievements/ examination types Course-dependent -				If applicable, weighting of the study/examination achievements		
Module objectives/desired learning outcomes: Areas of competence of the Individual Profile Studies (IPS) • Thinking and acting like an entrepreneur • Leadership skills • Communication and individual skills • Social and societal skills • Media skills • Interdisciplinary specialized knowledge • Language competence						
Contents: See the IPS Module Handbook for the current range of courses (https://www.hawk.de/de/hochschule/organisation-und-personen/zentrale-einrichtungen/hawk-plus/individuelles-profilstudium)						
Course attendance time (in mandatory hours - LVS)				Workload (in hours)		
up to 4 LVS			Course attendance time		Home study	
	-		Lecture		Course accompanying and exam preparation 120 h	
	-		Exercise			
	-		Other	60 h		
Total classroom time		4 LVS	Total workload			180 h
Optional extra						
Literature is listed in Stud.IP						

Allocation to course of study Bachelor of Civil Engineering		Geotechnics 2		Course code BBV 06	Internal	Last updated 03.12.2018
Study semester 5th semester	Offered in WS			Credit points 6 CP		Semester week hours 4 SWS
Allocation to study specialization All		Responsible for module Prof. Dr.-Ing. Georg Maybaum		Type of teaching, group size, if applicable Lecture with exercises		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations				Recommended prerequisites		
Study/examination achievements/ examination types Written examination (K2) -				If applicable, weighting of the study/examination achievements		
Module objectives/desired learning outcomes: Knowledge - about special soil mechanics laboratory tests, - on the preparation of geotechnical expert opinions, - on procedures for securing excavations to maintain water pressure, - on water retention and its calculation, - on subsoil behavior under external influences and the corresponding calculations, - on methods of subsoil improvement; - Assessment of the quality and informative value of existing information sources and documentation						
Contents: Explanation of more complex laboratory tests; Communication of in-depth knowledge on special procedures in geotechnical engineering; calculation procedures for stability and serviceability verifications; information on the practical preparation of expert reports						
Course attendance time (in mandatory hours - LVS)				Workload (in hours)		
Prof. Dr. G. Maybaum		4 LVS	Course attendance time		Home study	
		-	Lecture	50 h	Course accompanying and exam preparation 120 h	
		-	Exercise	10 h		
		-	Other			
Total classroom time		4 LVS	Total workload			180 h
Optional extra						
Literature is listed in Stud.IP						

Allocation to course of study Bachelor of Civil Engineering		Module name Mudbrick / clay building	Course code BBV 07	Internal	Last updated 03.12.2018
Study semester 5th semester	Offered in WS		Credit points 6 CP		Semester week hours 4 SWS
Allocation to study specialization All		Responsible for module Prof. Dr.-Ing. Georg Maybaum	Type of teaching, group size, if applicable Seminar		
Can also be credited to study program Bachelor of Wood Engineering			Language of instruction German		
Requirements according to examination regulations			Recommended prerequisites		
Study/examination achievements/ examination types Student research paper with colloquium -			If applicable, weighting of the study/examination achievements		

Module objectives/desired learning outcomes:

Students

- understand mudbrick as a building material of the past, present and, in view of its renaissance in the 21st century, also as a building material of the future.
- are familiar with the design options that mudbrick offers as a building material.
- deal with its material properties as well as with traditional and modern construction methods and the state of the art of rehabilitation techniques within the framework of the basic theoretical principles.
- know about the connection to the Lehm e.V. network, which HAWK was involved in founding in 2008, the problems of production processes in the manufacture of mudbrick building products, the craftsmanship involved in the use of semi-finished mud products and, last but not least, the state of the art in research.
- gain valuable experience for quality assurance during their own practical exercises in the laboratory and valuable experience on site for tendering and construction management tasks.

Contents:

- History of mudbrick building
- Cultural heritage and world cultural heritage
- The building material and its characteristics
- Building methods such as adobe construction, Weller construction, rammed earth construction, half-timbered construction with compartments filled with clay/mud etc.
- Design options from yesterday, for today and for tomorrow
- Building improvement technologies
- Visits to construction sites, if applicable

Course attendance time (in mandatory hours - LVS)		Workload (in hours)			
Prof. Dr. G. Maybaum	4 LVS	Course attendance time		Home study	
	-	Lecture	60 h	Course accompanying and exam preparation	90 h
	-	Exercise	30 h		
	-	Other			
Total classroom time	4 LVS	Total workload			180 h

Optional extra

Practical exercises in the lab with the goal of quality assurance

Literature

is listed in Stud.IP

Allocation to course of study Bachelor of Civil Engineering		Module name Building damages and redevelopment	Course code BBV 08	Internal	Last updated 15.04.2020
Study semester 5th semester	Offered in WS		Credit points 6 CP		Semester week hours 4 SWS
Allocation to study specialization All			Type of teaching, group size, if applicable Lecture		
Can also be credited to study program -			Language of instruction German		
Requirements according to examination regulations			Recommended prerequisites		
Study/examination achievements/ examination types Seminar paper -			If applicable, weighting of the study/examination achievements		
Module objectives/desired learning outcomes: In-depth knowledge of the cause, recording and analysis of damage to masonry, reinforced and prestressed concrete components and structures Knowledge and application of examination and measurement methods for building materials and structural damage In-depth knowledge of the repair of existing building components					
Contents: Basic principles Causes of damage to structural elements/structures made of masonry, natural stone as well as reinforced and prestressed concrete Inventory and damage diagnosis Examination and measurement methods for building materials and structural damage Redevelopment construction materials Methods for repair, restoration of masonry, restoration of concrete structures, restoration of fire damage					
Course attendance time (in mandatory hours - LVS)			Workload (in hours)		
Prof. Dr.-Ing. Iris Marquardt	4 LVS	Course attendance time		Home study	
	-	Lecture	60 h	Course accompanying and exam preparation	120 h
	-	Exercise			
	-	Other			
Total classroom time	4 LVS	Total workload			180 h
Optional extra					
Literature is listed in Stud.IP					

Allocation to course of study Bachelor of Civil Engineering		Module name Higher concrete technology	Course code BBV 09	Internal	Last updated 15.04.2020
Study semester 4th semester	Offered in SS		Credit points 6 CP		Semester week hours 4 SWS
Allocation to study specialization All			Type of teaching, group size, if applicable Lecture		
Can also be credited to study program -		Responsible for module Prof. Dr.-Ing. Iris Marquardt	Language of instruction German		
Requirements according to examination regulations			Recommended prerequisites Basic principles of concrete technology		
Study/examination achievements/ examination types Written examination (K2) -		If applicable, weighting of the study/examination achievements			
Module objectives/desired learning outcomes: - Skills for application-specific selection of concretes and for specifying and ordering concrete - Acquisition of in-depth knowledge on the professional execution of concrete structures (processing, curing, quality monitoring) - Recognition of concrete-technological correlations in the construction process - Assessment of the influences on the durability of concrete and derivation of appropriate measures - Recognize damage potential on concrete components and prevent damage					
Contents: - Concrete raw materials - Fresh and hardened concrete properties - Specifying and ordering concrete - Production and delivery of concrete - Construction execution - Monitoring concrete at building sites - Concrete for special applications: including high-strength and ultra-high-strength concrete, self-compacting concrete, concrete for massive structures, concrete for hydraulic structures, fair-faced concrete - Durability of concrete - Damages to concrete structures and their prevention					
Course attendance time (in mandatory hours - LVS)		Workload (in hours)			
Prof. Dr.-Ing. Iris Marquardt	4 LVS	Course attendance time		Home study	
	-	Lecture	60 h	Course accompanying and exam preparation	120 h
	-	Exercise			
	-	Other			
Total classroom time	4 LVS	Total workload			180 h
Optional extra					
Literature is listed in Stud.IP					

Allocation to course of study Bachelor of Civil Engineering		Module name Special fields of solid construction and FEM	Course code BBV-33	Internal	Last updated 20.07.2021
Study semester 5th semester	Offered in WS		Credit points 6 CP	Semester week hours 4 SWS	
Allocation to study specialization Structural civil engineering			Type of teaching, group size, if applicable Lecture and exercise		
Can also be credited to study program -		Responsible for module Prof. Dr.-Ing. Martin Klaus	Language of instruction German		
Requirements according to examination regulations			Recommended prerequisites BB 3-7 (Solid construction 1), BB 4-6 (Solid construction: 2)		
Study/examination achievements/ examination types Written examination (K2) Student research paper without colloquium		If applicable, weighting of the study/examination achievements 50% exam and 50% student research paper			
Module objectives/desired learning outcomes: The module is divided into the subsections of special fields of solid construction and the Finite Element Method (FEM). Subsection: Solid construction Students expand their skills for the design and for the dimensioning of special reinforced concrete components. They are able to handle statically indeterminate bracing systems in building construction. Students are able to calculate slab structures and develop, design and construct simple beam models correctly. They have knowledge of the integration of torsional stresses within the framework of the shear force design of beam components made of reinforced concrete. Subsection: FEM Students are able to calculate simple beam and plate structures using the finite element method and specifically apply FE programs from engineering practice. They understand how to interpret error messages from the software and calculation results and convert them into execution plans.					
Contents: Special fields of solid construction - Design of bracing systems in solid construction (Bracing systems part 1) - Disc-type components (part 1) - Bar models and design of discontinuity areas (part 1) - Torsional stresses and design in reinforced concrete structures FEM - Historical development - Explanation of the main features of the theory of FEM using the example of a beam structure - Application of a commercial program from engineering practice for the calculation of spatial beam structures - Application of a commercial program from the engineering practice for the calculation of surface structures - Interpretation and conversion of calculation results of an FEM calculation into a reinforcement plan					
Course attendance time (in mandatory hours - LVS)		Workload (in hours)			
Prof. Dr.-Ing. Martin Klaus	2 LVS	Course attendance time		Home study	
Prof. Dr.-Ing. habil. Michael Hansen	2 LVS	Lecture	45 h	Course accompanying and exam preparation	120 h
	-	Exercise	15 h		
	-	Other			
Total classroom time	4 LVS	Total workload			180 h
Optional extra					
Literature is listed in Stud.IP					

Allocation to course of study Bachelor of Civil Engineering		Module name Prestressed concrete and prefabricated construction 1	Course code BBV-34	Internal	Last updated 20.07.2021
Study semester 5th semester	Offered in WS		Credit points 6 CP		Semester week hours 4 SWS
Allocation to study specialization Structural civil engineering		Responsible for module Prof. Dr.-Ing. Martin Klaus	Type of teaching, group size, if applicable Lecture and exercise		
Can also be credited to study program -			Language of instruction German		
Requirements according to examination regulations			Recommended prerequisites Solid construction 1 (BB 3-6) und Solid construction: 2 (BB 4-6)		
Study/examination achievements/ examination types Written examination (K2) -			If applicable, weighting of the study/examination achievements		
Module objectives/desired learning outcomes: The module is divided into two subsections, prestressed concrete construction and precast construction. Prestressed concrete construction: Compared to reinforced concrete structures, the design of prestressed concrete structures requires increased effort in planning and calculation. The students acquire basic knowledge for the calculation of statically determinate prestressed concrete structures. They are able to understand and calculate simple prestressed structures. Prefabricated construction: The design, construction and calculation of precast structures differs from the procedure for concrete structures on location. Students learn about the planning process and the special features of the calculation and production of prefabricated structures. They are able to understand the specifics in precast design and can design and calculate a variety of precast elements in building construction.					
Contents: Prestressed concrete construction: - Historical development, prestressing process - Determining the tendon profile - Determination of internal forces for statically determined prestressed concrete components taking into account all prestressing losses - Dimensioning prestressed concrete parts in the ultimate limit states - Structural design of prestressed concrete components Prefabricated construction: - Historical development, special features of the planning and construction process - Requirements for a design suitable for finished parts - Getting to know FT type programs - Special features regarding the execution planning - Planning and dimensioning special standardized connections					
Course attendance time (in mandatory hours - LVS)			Workload (in hours)		
Prof. Dr. Martin Klaus		4 LVS	Course attendance time		Home study
		-	Lecture	45 h	Course accompanying and exam preparation 120 h
		-	Exercise	15 h	
		-	Other		
Total classroom time		4 LVS	Total workload 180 h		
Optional extra					
Literature is listed in Stud.IP					

Allocation to course of study Bachelor of Civil Engineering		Module name Basic principles of bridge building		Course code BBV-36	Internal	Last updated 21.06.2021
Study semester 5th semester	Offered in WS			Credit points 6 CP	Semester week hours 4 SWS	
Allocation to study specialization Structural civil engineering		Responsible for module Prof. Dr.-Ing. Martin Klaus		Type of teaching, group size, if applicable Lecture and exercise		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations			Recommended prerequisites Solid construction 1/2 (BB 3-7/BB 4-6); parallel: So. Solid construction (BBV-33)			
Study/examination achievements/ examination types Student research paper without colloquium -			If applicable, weighting of the study/examination achievements			
Module objectives/desired learning outcomes: Students learn about and understand the basics of bridge construction and building aid. They become familiar with the terminology used in bridge building. They have an overview of load assumptions and are familiar with various bridge systems, primarily in solid bridge construction. They are able to design and calculate substructures such as piers and abutments. Furthermore, they are familiar with construction procedures and have an understanding of the design and calculation of falsework/shoring.						
Contents: - General load-bearing systems in bridge construction - Load assumptions in road bridge construction - Building processes - Design and calculation of substructures - Calculating simple falsework/shoring						
Course attendance time (in mandatory hours - LVS)			Workload (in hours)			
Prof. Dr. Martin Klaus	4 LVS	Course attendance time		Home study		
	-	Lecture	30 h	Course accompanying and exam preparation		120 h
	-	Exercise	30 h			
	-	Other				
Total classroom time	4 LVS	Total workload				180 h
Optional extra						
Literature is listed in Stud.IP						

Allocation to course of study Bachelor of Civil Engineering		Module name Wood engineering	Course code BBV-38	Internal	Last updated 24.08.2018
Study semester 5th semester	Offered in WS		Credit points 6 CP		Semester week hours 4 SWS
Allocation to study specialization Structural civil engineering			Type of teaching, group size, if applicable Lecture and exercise		
Can also be credited to study program -		Responsible for module Prof. Dr.-Ing. Volker Krämer	Language of instruction German		
Requirements according to examination regulations			Recommended prerequisites Wood engineering:		
Study/examination achievements/ examination types Written examination (K2) -		If applicable, weighting of the study/examination achievements			
Module objectives/desired learning outcomes: Students • learn further joining techniques in timber construction and how to verify them in accordance with standards, • are also able to determine the compliance of lanyards and the influence of compliance on internal forces and buckling lengths, • learn how to determine internal forces on composite members (rigid and yielding) and how to verify composite members, • learn to design and verify large-format timber components, with non-parallel component edges.					
Contents: • Methods of joining in carpentry • Specially designed dowels • Screws • Yielding of connections • Bending resistant connections, spring stiffnesses • Composite components • Pitched roof girders • Saddle roof girders (straight / curved bottom chord)					
Course attendance time (in mandatory hours - LVS)		Workload (in hours)			
Prof. Dr. V. Krämer	4 LVS	Course attendance time		Home study	
	-	Lecture	40 h	Course accompanying and exam preparation	120 h
	-	Exercise	20 h		
	-	Other			
Total classroom time	4 LVS	Total workload			180 h
Optional extra					
Literature is listed in Stud.IP					

Allocation to course of study Bachelor of Civil Engineering		Module name Water engineering in actual practice		Course code BBV-63	Internal	Last updated 18.05.2021
Study semester 5th semester	Offered in WS			Credit points 6 CP	Semester week hours 4 SWS	
Allocation to study specialization Water and traffic engineering		Responsible for module Prof. Dr. Axel Stödter		Type of teaching, group size, if applicable Exercises Workshop/excursion		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations				Recommended prerequisites		
Study/examination achievements/ examination types Student research paper with colloquium -				If applicable, weighting of the study/examination achievements		
Module objectives/desired learning outcomes: - Part: Water engineering lab Students gain practical knowledge of the functional relationships between hydraulic systems. To do so, they conduct experiments in a hydraulic engineering lab. - Part: Workshop/excursion In addition, participation in a workshop or field trip to view selected hydraulic engineering facilities and discuss current needs with operators is mandatory. A good working knowledge of English may also be required. Alternatively, other practical exercise components/workshops/excursions with the same module objectives are possible. - Overarching learning objectives: They are enabled to develop their own learning strategies and conduct independent research. Within the project work they develop their own team, conflict, facilitation and leadership skills. The project improves their motivation, professional open-mindedness and agility, as well as their creativity.						
Contents: - Models of hydraulic engineering plant components and the laws governing them - Experiments on gravity feeders and pipelines - Participation in a national/international workshop/excursion in a hydraulic engineering/water management context						
Course attendance time (in mandatory hours - LVS)				Workload (in hours)		
Prof. Dr. Axel Stödter		4 LVS	Course attendance time		Home study	
		-	Lecture	30 h	Course accompanying and exam preparation	120 h
		-	Exercise	30 h		
		-	Other			
Total classroom time		4 LVS	Total workload			180 h
Optional extra						
Literature is listed in Stud.IP						

Allocation to course of study Bachelor of Civil Engineering		Module name Drinking water and wastewater networks		Course code BBV 64	Internal	Last updated 01.09.2018
Study semester 5th semester	Offered in WS	Responsible for module Prof. Dr.-Ing. Günther Bahre		Credit points 6 CP		Semester week hours 4 SWS
Allocation to study specialization Water and traffic engineering				Type of teaching, group size, if applicable Lecture with exercises		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations				Recommended prerequisites Successful completion of module BB 3-3		
Study/examination achievements/ examination types Written examination (K2) -				If applicable, weighting of the study/examination achievements		
Module objectives/desired learning outcomes: • Students extend their previous knowledge from the Hydromechanics module (3rd semester) and learn the applications for the hydraulic design of drinking water and wastewater networks, taking into account the limits of the process. • They are able to define complete systems for potable water supply and dimension the major individual elements. • They master the tools needed to construct drinking water and wastewater networks. • They have basic knowledge and skills to renovate wastewater networks.						
Contents: • Collection of basic data on drinking water and wastewater volumes • Practical methods and tools for hydraulic calculation of partially and fully filled pipelines • Calculation and dimensioning of drinking water networks including storage tanks and pumping stations • Calculation and dimensioning of wastewater networks including verification methods by hydrodynamic calculation • Construction of pipelines using open and trenchless methods • Testing for leaks • Causes of damage, damage identification and assessment as well as rehabilitation of wastewater pipes						
Course attendance time (in mandatory hours - LVS)				Workload (in hours)		
Prof. Dr. G. Bahre		4 LVS	Course attendance time		Home study	
		-	Lecture	50 h	Course accompanying and exam preparation 120 h	
		-	Exercise	10 h		
		-	Other			
Total classroom time		4 LVS	Total workload			180 h
Optional extra Exercise units						
Literature is listed in Stud.IP						

Allocation to course of study Bachelor of Civil Engineering		Module name Drinking water, wastewater, waste in developing countries	Course code BBV 66	Internal	Last updated 01.09.2018
Study semester 5th semester	Offered in SS		Credit points 6 CP	Semester week hours 4 SWS	
Allocation to study specialization Water and traffic engineering		Responsible for module Prof. Dr.-Ing. Günther Bahre	Type of teaching, group size, if applicable Lecture		
Can also be credited to study program -			Language of instruction German		
Requirements according to examination regulations			Recommended prerequisites Successful completion of module BB 3-3		
Study/examination achievements/ examination types Seminar paper -			If applicable, weighting of the study/examination achievements		
Module objectives/desired learning outcomes: • Students recognize the connections between the health of an area's population and drinking water supply or wastewater disposal. • They recognize the economic and ecological interrelationships in supply and disposal. • They learn about alternative processes for drinking water treatment and wastewater treatment (especially those with low resource requirements) • and can realistically assess their application possibilities and limits. • Students acquire basic skills in project development and implementation in the context of the international water sector.					
Contents: • Health hazards due to water • 'Appropriate and sustainable technologies' • Processes for drinking water production, treatment and distribution in rural and urban areas • Processes for decentralized and centralized treatment of wastewater • Alternative drainage systems (small bore sewer system, condominiumal system) • Forms of organization in the drinking water and wastewater sector • Basic principles for waste treatment and disposal					
Course attendance time (in mandatory hours - LVS)			Workload (in hours)		
Prof. Dr. G. Bahre		4 LVS	Course attendance time		Home study
		-	Lecture	60 h	Course accompanying and exam preparation
		-	Exercise		
		-	Other		
Total classroom time		4 LVS	Total workload		180 h
Optional extra					
Literature is listed in Stud.IP					

Allocation to course of study Bachelor of Civil Engineering		Module name Designing traffic facilities		Course code BBV-68	Internal	Last updated 04.08.2018
Study semester 5th semester	Offered in WS			Credit points 6 CP	Semester week hours 4 SWS	
Allocation to study specialization Water and traffic engineering		Responsible for module N.N.		Type of teaching, group size, if applicable Seminar teaching		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations			Recommended prerequisites Participation in module BB 3-2 Traffic and water engineering			
Study/examination achievements/ examination types Student research paper with colloquium -			If applicable, weighting of the study/examination achievements			
Module objectives/desired learning outcomes: - In-depth knowledge of the system interrelationships of traffic occurrence - In-depth knowledge regarding the general conditions affecting the traffic volume - Understanding of the dependencies between traffic volume and the quality of traffic flow - Ability to carry out the evaluation of the quality of the traffic facility from the point of view of traffic engineering and the user - Basic understanding of simulation tasks						
Contents: - Basic principles and definitions from the current reference works - Dimensioning elevated intersections - Dimensioning at-grade intersections with and without traffic signals - Dimensioning route sections - Introduction to the VISSIM program system - Network processing and traffic control - Motion models and visualization of traffic flows						
Course attendance time (in mandatory hours - LVS)			Workload (in hours)			
Hon.-Prof. Dr. D. Seebo	4 LVS	Course attendance time		Home study		
	-	Lecture	60 h	Course accompanying and exam preparation		120 h
	-	Exercise				
	-	Other				
Total classroom time	4 LVS	Total workload				180 h
Optional extra						
Literature is listed in Stud.IP						

Allocation to course of study Bachelor of Civil Engineering		Module name Railroad construction		Course code BBV-69	Internal	Last updated 01.09.2018
Study semester 5th semester	Offered in WS			Credit points 6 CP	Semester week hours 4 SWS	
Allocation to study specialization Water and traffic engineering		Responsible for module N.N.		Type of teaching, group size, if applicable Lecture with exercises		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations none			Recommended prerequisites Participation in module BB 3-2 Traffic and water engineering			
Study/examination achievements/ examination types Student research paper with colloquium -			If applicable, weighting of the study/examination achievements			
Module objectives/desired learning outcomes: Students • are able to carry out routing calculations, • know the basics of operations control technology and signaling in rail transport, • know the legal regulations and ordinances for rail transport, SPNV and SPFV, • are able to design railroad facilities and plan construction execution.						
Contents: • Calculation of permissible speeds in the travel path • Lines and design of railroad facilities Substructure and superstructures • Signal planning in the station and track area • Determining train sequences Basic principles of operations control in the main signal, pre-signaling system and when driving on electric sight in high-speed traffic • Travel time calculations • Construction operations planning for construction work while maintaining railroad operations Intermittent single-track operation, track-change operation, signalized wrong-way operation, driving on command						
Course attendance time (in mandatory hours - LVS)			Workload (in hours)			
N.N.	4 LVS	Course attendance time		Home study		
	-	Lecture	50 h	Course accompanying and exam preparation		120 h
	-	Exercise	10 h			
	-	Other				
Total classroom time	4 LVS	Total workload				180 h
Optional extra						
Literature is listed in Stud.IP						

Allocation to course of study Bachelor of Civil Engineering		Module name Current topics from streets and roadways	Course code BBV-71	Internal	Last updated 04.08.2018
Study semester 5th semester	Offered in SS		Credit points 6 CP		Semester week hours 4 SWS
Allocation to study specialization Water and traffic engineering		Responsible for module N.N.	Type of teaching, group size, if applicable Seminar teaching		
Can also be credited to study program -			Language of instruction German		
Requirements according to examination regulations			Recommended prerequisites Participation in module BB 3-2 Streets and roadways		
Study/examination achievements/ examination types Written examination (K1) Student research paper without colloquium			If applicable, weighting of the study/examination achievements Exam 50% , student research paper 50%		
Module objectives/desired learning outcomes: Communication of knowledge and skills from a variety of current transportation topics The following descriptions of contents are to be understood as examples and are subject to change.					
Contents: Part 1: Computer-aided design planning in road engineering: - Introduction to the structure of the program system - Coordinate management, digital terrain model, site plan editing - Introduction to street and road routing - Axis and gradient processing - Terrain profile determination, cross sections, profile processing - Preparation of site plan drawings, axis drawings, elevation drawings, profile drawings Part 2: Road construction and maintenance: - Basic principles of recording, evaluating and forecasting road conditions with regard to serviceability and substance - Road construction methods and measures for road maintenance					
Course attendance time (in mandatory hours - LVS)			Workload (in hours)		
Hon.-Prof. Daniel Seebo	2 LVS	Course attendance time		Home study	
Assistant lecturer	2 LVS	Lecture	60 h	Course accompanying and exam preparation	120 h
	-	Exercise			
	-	Other			
Total classroom time	4 LVS	Total workload			180 h
Optional extra					
Literature is listed in Stud.IP					

Allocation to course of study Bachelor of Civil Engineering		Module name Building operations 3		Course code BBV 81	Internal	Last updated 25.01.2019
Study semester 5th semester	Offered in WS			Credit points 6 CP	Semester week hours 4 SWS	
Allocation to study specialization Building operations, construction Management		Responsible for module Prof. Dr.-Ing. Mario Hanusrichter		Type of teaching, group size, if applicable Lecture, exercise		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations			Recommended prerequisites Building operations 1 and 2			
Study/examination achievements/ examination types Written examination (K2) -			If applicable, weighting of the study/examination achievements			
Module objectives/desired learning outcomes: Construction industry II: Students acquire in-depth knowledge of the organization of construction and the interaction of the various parties involved. The focus in this course is on the economic aspects in the context of contract execution. The knowledge acquired in the lectures is applied and expanded in a practical manner in the form of exercises. Building technology II: Students acquire advanced knowledge of special aspects of construction engineering (especially construction process engineering) including scheduling. In the form of an exercise, the previous knowledge of scheduling will be applied and reinforced in a practical manner.						
Contents: Construction industry II (lecture): - Joint ventures; risks and conflicts; forms of entrepreneurship - Cost planning according to DIN 276; architect and engineer contracts - Securing claims for payment and performance - Changes in performance; price adjustment; supplementary agreements; subcontractor agreements - Work calculation and performance evaluation construction Industry II (exercise) - Calculation of overhead costs; calculation of special items - Partial termination; changes in quantity (compensation calculation) Building technology II: - Excavation pits; construction in groundwater; formwork technology; semi-finished parts - Underground construction; road construction; pipeline construction; bridge construction; tunnel construction - Demolition work and disposal - Job scheduling with exercise						
Course attendance time (in mandatory hours - LVS)			Workload (in hours)			
Prof. Dr. M. Hanusrichter	4 LVS	Course attendance time		Home study		
	-	Lecture	50 h	Course accompanying and exam preparation		120 h
	-	Exercise	10 h			
	-	Other				
Total classroom time	4 LVS	Total workload				180 h
Optional extra						
Literature is listed in Stud.IP						

Allocation to course of study Bachelor of Civil Engineering		Module name Building supervision and site management		Course code BBV 82	Internal	Last updated 25.01.2019
Study semester 5th semester	Offered in SS			Credit points 6 CP	Semester week hours 4 SWS	
Allocation to study specialization Building operations, construction Management		Responsible for module Prof. Dr.-Ing. Mario Hanusrichter		Type of teaching, group size, if applicable Lecture, exercise, seminar papers		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations				Recommended prerequisites Building operations 3		
Study/examination achievements/ examination types Written examination (K1) -				If applicable, weighting of the study/examination achievements		
Module objectives/desired learning outcomes: Building supervision and site management (Lecture): Students gain knowledge of the essential aspects of managing construction sites. In preparation for their career start, they examine and understand the different perspectives and tasks of the client and contractor (contractor construction manager, client construction supervisor or client object supervisor). In addition, they learn about the fundamentals for dealing with planning and construction disruptions. They also learn about the basics of turnkey construction as a special form of organization and contracting. In particular, a closer look is taken at special contractual features in JV (SF) contracts. Building supervision and site management (seminar papers, exercises): With a suitable number of participants, the students deal with the different interests of the construction parties in exercises or in the preparation and delivery of presentations and thereby improve their skills. Seminar on construction site management: With a suitable number of participants, selected projects and typical activities of various professions are presented in lecture seminars by speakers from the construction industry.						
Contents: Building supervision and site management (lecture): - General conditions for the job; tasks and requirements (requirements profile) - Legal framework; client and authorities and institutions involved - Activities of the contractor and the client site manager - Construction site documentation; meetings and correspondence; measurement and billing - Subcontractor deployment; performance reporting - Identification and management of disruptions in the construction process; supplementary management - Dealing with crises; partnership-based approaches to solutions; management discussions - Typical regulations in GU-(SF) contracts; concretization of the performance target; sampling - Selected technical aspects of general development - Interface problems; tolerances; acceptance Building supervision and site management (seminar papers, exercise): - Addenda; acceptance, securities, concerns, disturbed construction process - Processing of a quotation calculation, negotiation; presentation						
Course attendance time (in mandatory hours - LVS)				Workload (in hours)		
Prof. Dr. M. Hanusrichter		4 LVS		Course attendance time		Home study
		-		Lecture	50 h	Course accompanying and exam preparation
		-		Exercise	10 h	
		-		Other		
Total classroom time		4 LVS		Total workload		180 h
Optional extra						
Literature is listed in Stud.IP						

Allocation to course of study Bachelor of Civil Engineering		Module name Project management	Course code BBV-83	Internal	Last updated 01.04.2019
Study semester 5th semester	Offered in WS		Credit points 6 CP		Semester week hours 4 SWS
Allocation to study specialization Building operations, construction Management			Type of teaching, group size, if applicable Lecture, exercise, seminar papers		
Can also be credited to study program -					
Requirements according to examination regulations		Recommended prerequisites			
Study/examination achievements/ examination types Student research paper with colloquium -		If applicable, weighting of the study/examination achievements Presentation: if applicable, part of the examination (see below)			
Module objectives/desired learning outcomes: Project management (lecture): Students acquire knowledge of the organizational tasks of all those involved in construction as well as the basic features of national and international project management standards and methods. In addition, students learn about the basic organization of projects (structures, processes and products). Students should be able to use the basic tools for planning and controlling the parameters of deadlines, costs, and quality. Knowledge of the relationship between technology and the organization of execution should give them an overall view of project execution. They should know the project structures and project elements as a result. They can select and apply the most important tools for scheduling, cost and quality control for construction and operation for specific purposes. They learn the basics of how to think and act in order to manage projects in a target-oriented manner. Students acquire basic knowledge of the topics DIGITALIZATION (DIGITAL DESIGN AND CONSTRUCTION) and LEAN CONSTRUCTION. Project management (seminar papers, exercises): With a suitable number of participants, students deal with the various facets of project management in exercises or in the preparation and delivery of presentations, thereby improving their skills.					
Contents: BASIC PRINCIPLES OF PROJECT MANAGEMENT: Introduction to project management; project management standards and methods; project organization: Structures, processes and products in construction projects; boundary conditions of the project SCHEDULING: Basic principles of goal-oriented control; project organization; structure of projects; methods, tools; work objectives; time planning, sequence planning COST CONTROL: Cost control on the side of the client; goals and tasks of cost determination and pricing at the contractor; classification of cost determination and cost control; cost types at the contractor; structure of the individual costs; sources of information for the cost types; dynamic contribution margin accounting; cost determination and pricing; determination of the enforceable market price QUALITY CONTROL: Agreement on characteristics; recognized rules of technology; suitability for the use assumed under the contract or for normal use; quality planning DIGITALIZATION (DIGITAL DESIGN AND CONSTRUCTION): Basics of Building Information Modeling (BIM); basic ideas of BIM; benefits and influence of BIM on construction project management LEAN CONSTRUCTION: Basic principles					
Course attendance time (in mandatory hours - LVS)		Workload (in hours)			
Prof. Dr. M. Hanusrichter	4 LVS	Course attendance time		Home study	
	-	Lecture	50 h	Course accompanying and exam preparation	120 h
	-	Exercise	10 h		
	-	Other			
Total classroom time	4 LVS	Total workload			180 h
Optional extra					
Literature is listed in Stud.IP					

Allocation to course of study Bachelor of Civil Engineering		Module name Safety and health protection		Course code BBV-84	Internal	Last updated 01.12.2019
Study semester 6th semester	Offered in SS			Credit points 6 CP	Semester week hours 4 SWS	
Allocation to study specialization Building operations, construction Management		Responsible for module Prof. Dr. M. Hanusrichter		Type of teaching, group size, if applicable Lecture, exercise		
Can also be credited to study program -				Language of instruction German		
Requirements according to examination regulations				Recommended prerequisites		
Study/examination achievements/ examination types Written examination (K2) -				If applicable, weighting of the study/examination achievements		
Module objectives/desired learning outcomes: Safety and health protection during construction work (lecture): - Acquisition of basic knowledge in health protection and occupational safety - Acquisition of "occupational safety knowledge" in accordance with the Construction Site Ordinance in conjunction with RAB 30 Annex B - Basic knowledge on how to prepare an operational risk assessment Safety and health protection during construction work (exercise): - Development of a sample risk assessment						
Contents: Occupational health and safety knowledge includes general principles of occupational health and safety, identification and assessment of hazards on construction sites and during subsequent work on the building structures, as well as the protective measures required for this and the organization of occupational health and safety on construction sites. It focuses on, among other things: Occupational health and safety legislation and system, site-specific accident and health hazards and necessary protective measures (measures for safety mining and civil engineering work, hazards due to falling, safe use of scaffolding, safe use of ladders, mobile scaffolds and lifting platforms, hazards due to electricity, operational fire protection, hazards due to hazardous substances, measures for safety during assembly work, measures for safety during demolition and renovation work, safe use of machinery and equipment), first aid facilities, day shelters, washrooms, toilets and other facilities, personal protective equipment Based on this, students are gradually introduced to the preparation of a risk assessment for a construction company.						
Course attendance time (in mandatory hours - LVS)				Workload (in hours)		
Assistant lecturer Dipl.-Ing. K. Oetke		4 LVS	Course attendance time		Home study	
		-	Lecture	50 h	Course accompanying and exam preparation 120 h	
		-	Exercise	10 h		
		-	Other			
Total classroom time		4 LVS	Total workload			180 h
Optional extra Acquisition of the qualification for special coordinator knowledge according to Annex C (BaustellV, RAB 30), if applicable						
Literature is listed in Stud.IP						

Allocation to course of study Bachelor of Civil Engineering		Module name Special project	Course code BBV 99	Internal	Last updated 01.09.2018
Study semester 5th semester	Offered in WS + SS		Credit points 6 CP		Semester week hours n/a
Allocation to study specialization All		Responsible for module N.N.	Type of teaching, group size, if applicable Project with (lab and field) exercises		
Can also be credited to study program -			Language of instruction German		
Requirements according to examination regulations			Recommended prerequisites		
Study/examination achievements/ examination types Student research paper with colloquium -			If applicable, weighting of the study/examination achievements		

Module objectives/desired learning outcomes:

Practical training projects can be carried out in all the subject areas of civil engineering

Depending on the task, a subject-specific or interdisciplinary project with high practical relevance is carried out in cooperation with an engineering firm, a company, a specialist authority, etc., in which the student, largely independently, develops solutions that are designed to assess follow-up effects and provide technical and economic evaluations.

Contents:

Practical projects with different focuses from the fields of Structural engineering, water engineering, traffic engineering, construction operation/management, geotechnical engineering or interdisciplinary

The assignment will take into account the specialization/major chosen by the student.

Course attendance time (in mandatory hours - LVS)		Workload (in hours)		
All professors, per student	0.2 LVS	Course attendance time	Home study	
	-	Lecture		Course accompanying and exam preparation
	-	Exercise		
	-	Other	3 h	
Total classroom time	0.2 LVS	Total workload		
180 h				
Optional extra				
Literature is listed in Stud.IP				

Literature
is listed in Stud.IP

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