Module Handbook

Civil Engineering
(Bachelor of Science (B.Sc.), ER/SPO 2017)

Summer term 2021
Date: 01/03/2021

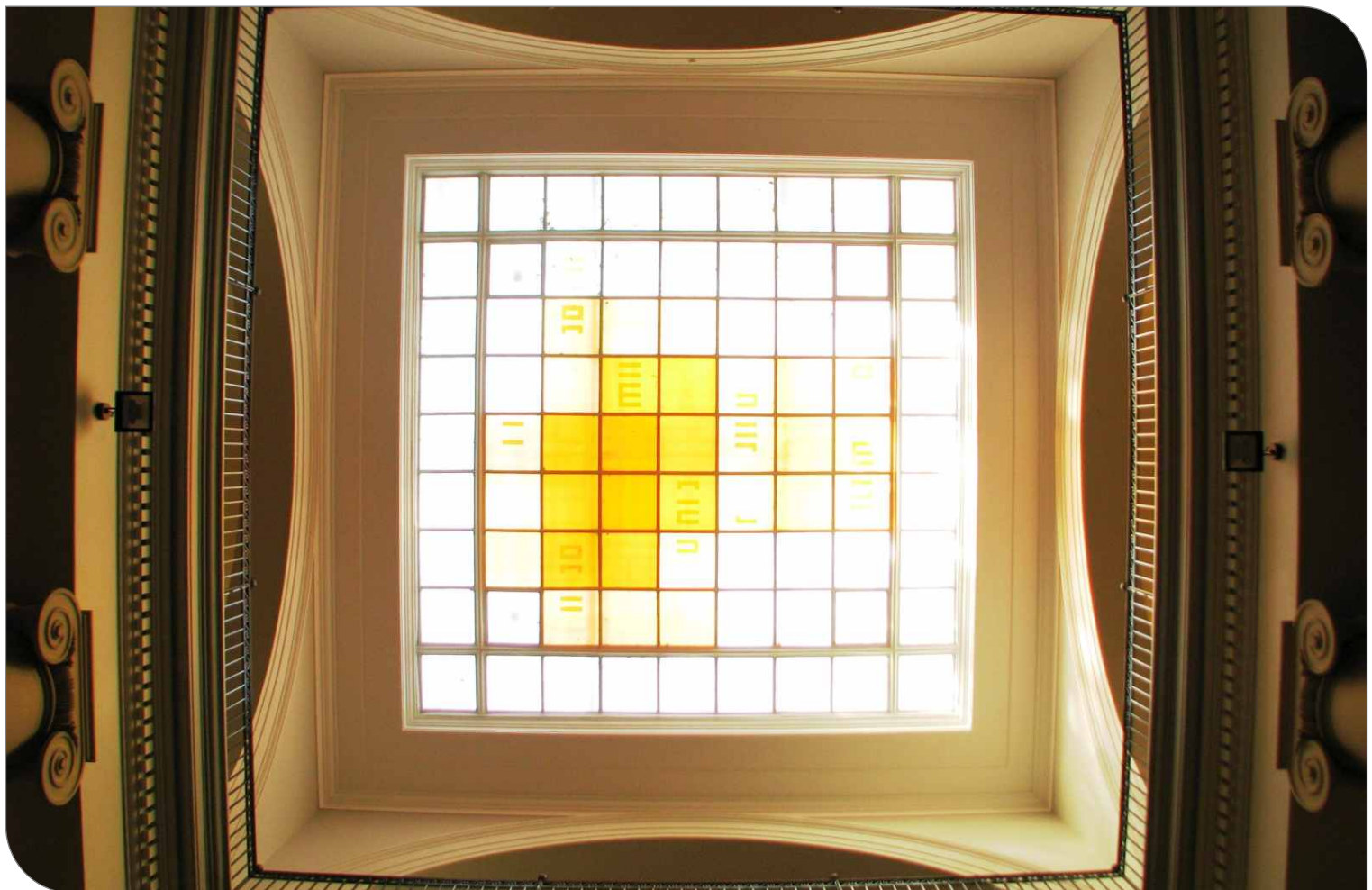KIT DEPARTMENT OF CIVIL ENGINEERING, GEO- AND ENVIRONMENTAL SCIENCES

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1 Preliminary remarks

The module handbook is the document in which important additional information about the studies is described. The general rules from the examination regulation (s. https://www.sle.kit.edu/english/vorstudium/2892.php, *partly in German*) and the structure of the program are specified by the curriculum (Chapt. 1). The main function of the Module Handbook is the compilation of the module descriptions (Chapt. 5) and the learning controls (Chapt. 6).

In addition to the module handbook information about the single courses (execution, content, etc.) is collected within the course catalog. Links to the courses (online) are given with the learning controls (Chapt. 6). The course language of all courses is German. Information about the examinations is provided by the self-service function for students. This information is also announced by postings and web pages of the institutes.

Hints concerning Corona pandemic:

The descriptions in this module handbook are <u>not</u> adapted to the rules concerning th Corona pandemic. Important information about the current rules are found on the webpage of the Corona Crisis Unit, http://www.kit.edu/kit/english/25911.php, in the section 'Studying and Teaching'. This will be updated regularly during the period of the pandemic.

Information about the offered mode of the single courses, in presence or online, are found in the online course catalog. In the linked ILIAS course further information about the procedure and content of the course is provided.

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2 Curriculum

In this section 'Curriculum' rules in addition to the examination regulation (ER/SPO) are described. This can be found on

> https://www.sle.kit.edu/downloads/AmtlicheBekanntmachungen/2017_AB_010.pdf
> (2017 KIT 010 Studien- und Prüfungsordnung des Karlsruher Instituts für Technologie (KIT) für den Bachelorstudiengang Bauingenieurwesen, *in German*)

Here, the structure of the degree program is presented and explained, for instance the assignment of the modules to the single subjects is specified.

2.1 Objectives of the bachelor degree program

The bachelor degree program **Civil Engineering** provides a fundamental and research-oriented qualification in all professional fields of civil engineering and simultaneously the scientific qualification for starting a master degree program in civil engineering or a related field. The focus of the qualification is on the technical and scientific basics and methods in all fields of civil engineering. Further essential parts of the qualification are competences in team work and communication.

The graduates are able to extend their acquired basic knowledge and their methodological competences in engineering and natural sciences by targeted and effective inquiries and to apply them in line with demand. Thus, they can deepen themselves in any field of the civil engineering profession. With this, they are able to plan, to design, to construct, to manage and to maintain all kinds of buildings, facilities and infrastructure our society needs.

The graduates become acquainted with technical problems mostly by themselves. They think holistic and bring thus in line social, ecological and economic issues for generating a solution. Their strength is on their technical know-how, which is supplemented by their acquired team and communication skills.

2.2 Structure of the bachelor degree program

The bachelor degree program Civil Engineering comprises 180 credit points (CP) and is structured in the two phases **Basic Studies** and **Basic Subject Studies** (see overview p. 6, comp. ER/SPO § 3 par. 3). These are further subdivided into **subjects**, **modules** and **courses**.

All subjects in the Basic Studies as well as in the Basic Subject Studies are **compulsory subjects**. Respective modules are assigned with every subject (e.g. Mathematics or Mechanics). The extent of a module is described by credit points, which are credited after successfully passing a module. The descriptions of all modules are included in this module handbook.

In every module one or more interrelated courses are offered. Every module will be completed by one or more **learning controls**. Learning controls are either graded (examinations) or not graded (not graded accomplishments).

Below, the components of the Basic Studies and Basic Subject Studies are explained. In the Additional Studies further learning controls can be taken. In the tables (overview p. 7 - 9) the order of the modules and the associated examinations are presented. In the appendix, a curriculum by example illustrates the completion of the studies within the standard period of study. The selected courses and learning controls in the modules 'Basics in Engineering II' and 'Supplements in Engineering' are <u>not any</u> recommendation.

| 1. Sem. (WS) | 2. Sem. (SS) | 3. Sem. (WS) | 4. Sem. (SS) | 5. Sem. (WS) | 6. Sem. (SS) |

Basic Studies

Basic Subject Studies

Technical Compulsory Subjects

Technical Compulsory Subjects

modules in subject Mechanics: **28 CP**

Statics of Rigid Bodies
Strength of Materials
Dynamics
Hydromechanics

module in subject Structural Analysis: **10 CP**

Structural Analysis

modules in subject Mathematics: **25 CP**

Analysis and Linear Algebra
Integration and Multivariate Analysis
Applied Statistics
Differential Equations

module in subject Mobility and Infrastructure: **12 CP**

Mobility and Infrastructure

modules in subject Structural Engineering: **14 CP**

Basics of Reinforced Concrete
Basics in Steel and Timber Structures

modules in subject Building Materials and Structural Design: **21 CP**

Building Materials
Structural Design

module in subject Technology and Management in Construction Operation: **11 CP**

Technology and Management in Construction Operation

module in subject Water and Environment: **12 CP**

Water and Environment

modules in subject Basics in Engineering: **10 CP**
Basics in Engineering I
Basics in Engineering II (selection)

module in subject Geotechnical Engineering: **11 CP**

Geotechnical Engineering

module in subject Supplements in Engineering: **8 CP**
Supplements in Engineering (selection)

Interdisciplinary Qualifications

Interdisciplinary Qualifications **6 CP**
(selected from the offer of HoC, ZAK)

Bachelor Thesis

12 CP

duration of preparation: 3 months
completion by presentation

Additional Studies

Additional Accomplishments / Additional Modules: **max. 30 CP**
freely selectable out of the entire course offer of KIT

prior master's transfer account: **max. 30 CP**

modules from a consecutive master degree program

Legend:

WS: winter semester
SS: summer semester
CP: credit points

Basic Studies

The **Basic Studies** define the semesters 1 - 3 of the standard period of study (comp. ER/SPO § 20). It comprises 90 CP in total, 84 CP of them in the technical compulsory subjects. **Technical compulsory subjects** in the Basic Studies are the subjects Mechanics (28 CP, 4 modules), Mathematics (25 CP, 4 modules), Building Materials and Structural Design (21 CP, 2 modules), as well as Basics in Engineering (10 CP, 2 modules). All modules are well defined with the associated learning controls in the subjects Mechanics, Mathematics as well as Building Materials and Structural Design. All learning controls in these subjects are graded.

Subject	Module [Code (baui)]	Course	Type	1. semester			2. semester			3. semester		
				HpW	LC	CP	HpW	LC	CP	HpW	LC	CP
Mechanics	Statics of Rigid Bodies [BGP01]	Statics of Rigid Bodies	L/E	3/2	wE OE	7						
	Strength of Materials [BGP02]	Strength of Materials	L/E				4/2	wE	9			
	Dynamics [BGP03]	Dynamics	L/E							2/2	nA [1) wE	6
	Hydromechanics [BGP04]	Hydromechanics	L/E							2/2	nA [1) wE	6
Mathematics	Analysis and Linear Algebra [BGP05]	Analysis and Linear Algebra	L/E	4/2	wE	9						
	Integration and Multivariate Analysis [BGP06]	Integration and Multivariate Analysis	L/E				4/2	wE	9			
	Applied Statistics [BGP07]	Applied Statistics	L/E				2	wE	3			
	Differential Equations [BGP08]	Differential Equations	L/E							2/1	wE	4
Building Materials and Structural Design	Building Materials [BGP09]	Theory of Building Materials	L/E				1/1	wE OE	3			
		Building Materials	L/E							4/2	wE	9
	Structural Design [BGP10]	Building Physics	L/E				1/1	wE OE	3			
		Structural Design	L/E							2/2	wE	6
Basics in Engineering	Basics in Engineering I [BGP15]	Project Management	L/E	2	nA	2						
		Geology in Civil Engineering	L/E				2	nA	2			
		Introduction to Computer Programming I	L/E	1/1	nA [1) nA	2						
	Basics in Engineering II [BGW8]	selection (4 CP have to be taken)		2-4	SL	2-4	0-2	nA	0-2			
Interdisciplinary Qualifications	Interdisciplinary Qualifications [BUEQ]	selection from the offer of HoC and ZAK		2	nA	3	2	nA	3			
Total				19-21	2E + 5-6nA	25-27	22-24	5E + 2-3nA	32-34	21	5E + 2nA	31

In the subject Basics in Engineering, the components of the module Basics in Engineering I (6 CP) are well defined as well, the associated learning controls are not graded. Whereas, the components of the module Basics in Engineering II (4 CP) can be selected from the available offer (see below). The associated learning controls are also not graded.

Subject	Module [Code (baui)]	Course	Type	1. semester			2. semester			3. semester		
				HpW	LC	CP	HpW	LC	CP	HpW	LC	CP
Basics in Engineering	Basics in Engineering II [BGW8]	Planning Methodology	L/E	1/1	nA	2						
		Chemistry of Building Materials	L	2	nA	2						
		Environmental Physics / Energy	L	2	nA	2						
		Technical Illustrations	L/E	2	nA	2						
		Laboratory Course	P	2	nA	2						
		Surveying	L/E				1/1	nA	2			

The **Orientation Examinations** are the module examinations Statics of Rigid Bodies (subject Mechanics) as well as the partial examinations Theory of Building Materials and Building Physics (both subject Building Materials and Structural Design). These have to be taken until the end of the second semester and to be passed until the end of the third semester.

Additionally in the Basic Studies, 6 CP has to be credited obligatorily as **Interdisciplinary Qualifications**. For that, courses can be selected in extent of 6 CP in total basically from the respective course catalog on key competences offered by the House of Competence (HoC) or the Centre for Cultural and General Studies (ZAK). Also, interdisciplinary qualifications acquired during a voluntarily taken professional internship can be credited with CPs by a respective attestation.

Basic Subject Studies

The **Basic Subject Studies** define the semesters 4 - 6 of the standard period of study (comp. ER/SPO § 20). They comprise 90 CP in total, 78 CP of them in the technical compulsory subjects. **Technical compulsory subjects** in the Basic Subject Studies are the subjects Structural Analysis (10 CP), Structural Engineering (14 CP), Water and Environment (12 CP), Mobility and Infrastructure (12 CP), Technology and Management in Construction (11 CP), Geotechnical Engineering (11 CP) as well as Supplements in Engineering (8 CP). These subjects consists of identically named modules except the module Structural Engineering, which consists of the two modules Basics of Reinforced Concrete and Basics in Steel and Timber Structures. All learning controls in these modules are well defined and graded with exception of the module Supplements in Engineering.

Subject	Module [Code (baui)]	Course	Type	4. semester			5. semester			6. semester		
				HpW	LC	CP	HpW	LC	CP	HpW	LC	CP
Structural Analysis	Structural Analysis [BFP1]	Structural Analysis I	L/E	2/2	wE	5						
		Structural Analysis II	L/E				2/2	wE	5			
Structural Engineering	Basics of Reinforced Concrete [BFP2]	Basics of Reinforced Concrete I	L/E				2/1	wE	4			
		Basics of Reinforced Concrete II	L/E							2	wE	2
	Basics in Steel and Timber Structures [BFP3]	Basics in Steel Structures	L/E				2/1	wE	4			
		Basics in Timber Structures	L/E				2/1	wE	4			
Water and Environment	Water and Environment [BFP4]	Hydraulic Engineering and Water Management	L/E				2/1		[3]		wE	12 [6]
		Hydrology	L/E				2/1		[3]			
		Sanitary Environmental Engineering	L/E							2/1		
Mobility and Infrastructure	Mobility and Infrastructure [BFP5]	Spatial Planing and Planing Law	L/E	2/1	nA [1) nA 1)] wE	12						
		Transportation	L/E	2/1								
		Design Basics in Highway Engineering	L/E	2/1								
Technology and Management in Construction	Technology and Management in Construction [BFP6]	Construction Technology	L/E	3/1	wE	11						
		Economics in Construction Operation	L/E	2/1								
		Facility and Real Estate Management	L	1								
Geotechnical Engineering	Geotechnical Engineering [BFP7]	Basics in Soil Mechanics	L/E	2/2		[4]		wE	11 [7]			
		Basics in Foundation Engineering	L/E				2/2					
Supplements in Engineering	Supplements in Engineering [BFW11]	selection (8 CP have to be taken)		0-6	nA	0-6	0-4	nA	0-4	0-8	nA	0-8
Bachelor's Thesis	Module Bachelor's Thesis [BSC]											12
Total				25-31	3E + 2-6nA	28-34	23-27	5E + 0-2nA	28-32	5-13	2E + 0-4nA	26-34

In the module Supplements in Engineering, the components can be selected from the available offer (see below). The learning controls to all selectable courses are not graded.

Subject	Module [Code (baui)]	Course	Type	4. semester HpW	4. semester LC	4. semester CP	5. semester HpW	5. semester LC	5. semester CP	6. semester HpW	6. semester LC	6. semester CP
Supplements in Engineering	Supplements in Engineering [BFW11]	Partial Differential Equations	L/E	1/1	nA	2						
		Introduction to Continuum Mechanics	L	2	nA	2						
		Physical Modelling in River Engineering	L							2	nA	2
		Project 'Plan, Design, Engineering'	Pj							2	nA	2
		Life Cycle Management	L/E							2	nA	2
		Engineering Hydrology	L/E							2	nA	2
		Introduction to Computer Programming II	L/E	1/1	nA [1] nA	2						
		Computer AidedDesign (CAD)	L/E				2	nA	2			
		Trades and Technology in Turnkey Construction	L/E				2	nA	2			

The admission to the examinations in the subjects Structural Engineering, Water and Environment and Geotechnical Engineering requires, that the module examinations in the subjects Mechanics and Mathematics as well the module examination Structural Design are all passed except two of them.

Furthermore, the **Bachelor's Thesis** (12 CP) is part of the Basic Subject Studies. The admission to the Bachelor's Thesis requires, that the student has completed all modules of the Basic Studies (90 CP) and modules in extent of 35 CP from the Basic Subject Studies.

Additional Studies

Beyond that, voluntary **additional accomplishments** can be taken in extent of 30 CP at maximum from the entire offer of KIT (comp. ER/SPO § 15). If a module is completed by the taken additional accomplishment it can be included in the bachelor degree certificate as additional module on request by the student.

In addition, modules can be taken in extent of 30 CP at maximum from a consecutive master degree program (e.g. 5 modules of the master degree program Civil Engineering) as **prior master's examinations** (comp. ER/SPO § 15a), if the student completed modules in extent of more than 120 CP. These can be credited in a future master degree program. With this, students are able to customize the interdisciplinary studies to the personal needs, interests and professional perspectives in terms of content and time as well.

explanations to the tables:

general:

- LC   learning control
- CP   credit point
- HpW   hours per week

type of course:

- L   lecture
- L/E   lecture and exercise, separate or integrated
- P   practical training
- Pj   study project

type of learning control:

- **wE**   written examination
- **OE**   orientation examination
- nA   not graded accomplishment
- nA [1]   not graded accomplishment as examination prerequisite

2.3 Selection and completion of a module

Every module and every examination has to be taken not more than once (comp. ER/SPO § 7 par. 5). Since all modules in the degree program are compulsory modules, there exists no option to select on the level of modules. Within the modules with selectable learning controls the student makes a decision at the time when registering to the respective learning control (comp. SPO § 5 par. 2). The student can revoke this mandatory selection only by canceling the registration to the learning control in time. After taking the learning control the selected learning control can be moved to the Additional Accomplishments and replaced by another one only by request to the Examination Committee Bachelor Civil Engineering.

A module is completed when all learning controls assigned to the module are passed, i.e. either evaluated as examination with grade '4.0' at minimum or as not graded accomplishment with 'passed'.

2.4 Repetition of examinations, deadlines

Principally, a failed examination can be repeated once, latest by the end of the examination period of the next but one semester to this examination (comp. ER/SPO § 8). If failing a written repeat examination a specific oral repeat examination can be taken. This is part of the overall repeat examination and will not be evaluated independently. After the specific oral repeat examination the overall grade of the repeat examination will be determined, either grade 4.0 (passed) or grade 5.0 (finally failed).

If the **repeat examination** (including a specific oral repeat examination) will be failed as well, the **examination claim** is lost. A potential request for a **second repetition** has to be made without delay after loosing the examination claim. Requests for a second repetition of an examination require the approval of the Examination Committee Bachelor Civil Engineering. A counseling interview is strongly recommended.

Orientation Examinations are the examinations in the module Statics of Rigid Bodies as well as the partial modules Theory of Building Materials and Building Physics (comp. ER/SPO § 8). These have to be taken by the end of the examination period of the second subject-related semester. Those who do not pass the Orientation Examinations including possible repeated examinations before the end of the examination period of the third subject-related semester will lose the examination claim in Civil Engineering. A second repetition of the Orientation Examinations is impossible.

A possible request for an **extension of deadline** has to be submitted to the Examination Committee Bachelor Civil Engineering. This request is also decided by the Examination Committee Bachelor Civil Engineering.

Further information is available in the examination regulation (ER/SPO, http://www.sle.kit.edu/downloads/ AmtlicheBekanntmachungen/2017_AB_010.pdf, *in German*) and from Examination Committee Bachelor Civil Engineering or the 'Fachschaft' (student council).

2.5 Students with disability or chronic disease

Students with disability or chronic disease have the opportunity to get preferred access to participation limited courses, to adapt the order of taking certain courses to their requirements, or to take examinations of single modules in individually arranged form or period ('Nachteilsausgleich' - compensation for disadvantage, comp. ER/ SPO § 13). The student has to present the respective attests.

The student submits an informal request with the respective attests to the Examination Committee Bachelor Civil Engineering. The Examination Committee Bachelor Civil Engineering defines in agreement with the examiner the details for the respective examination and informs the student in time.

2.6 Crediting and recognition of obtained accomplishments otherwise

Otherwise obtained accomplishments can by recognized generally under the conditions of the ER/SPO § 19. The recognition has to be made with the respective recognition form of the Examination Committee Bachelor Civil Engineering (http://www.ifv.kit.edu/pab.php).

If the accomplishments are mainly **identical** with modules from the curriculum (name, objectives, content) this is confirmed on the form by the respective lecturer.

If the accomplishments are **not identical** with modules from the curriculum they can be recognized as well, if the obtained competences contribute to achieve the qualification goals of the study program. The recognition and crediting which parts of the curriculum can be replaced is made by the Examination Committee Bachelor Civil Engineering.

The recognition of accomplishments obtained **outside of the higher education system** is made also with the respective recognition form of the Examination Committee Bachelor Civil Engineering (http://www.ifv.kit.edu/ pab.php). A recognition is possible if the obtained competences contribute to achieve the qualification goals of the study program. The Examination Committee Bachelor Civil Engineering examines in which extent the obtained knowledge and skills can be recognized and which parts of the higher education study can be replaced by them. It is allowed to replace not more than 50 % of the higher education study.

The recognition form has to be submitted to the bachelor Examination Committee Bachelor Civil Engineering which transfers it for crediting the accomplishments.

2.7 Bachelor's Thesis

The **Bachelor's Thesis** has to be prepared usually in the third your of studying (comp. also ER/SPO § 14). The topic of the bachelor's thesis has to be assigned by a professor, a leading scientists according to § 14 par. 3 no. 1 KITG or an academic assistant given the examining permission of the KIT Department of Civil Engineering, Geo- and Environmental Sciences (comp. ER/SPO § 14 par. 2). If the topic shall be assigned by an equivalent person of another KIT department the permission of the Examination Committee Bachelor Civil Engineering is required. The wishes of the students may be respected when formulating the topic. In case that the bachelor's thesis shall be prepared outside of KIT the leaflet 'Merkblatt - Externe Abschlussarbeiten' (http://www.haa.kit.edu/downloads/ KIT_ALLGEMEIN_ Merkblatt_Externe_Abschlussarbeiten.pdf, *in German*) has to be considered.

Those can be admitted to the bachelor's thesis who have passed successfully all modules of the Basic Studies, 90 CP, and modules of the Basic Subject Studies in extent of 35 CP. The supervisor initiates that the bachelor's thesis will be uploaded to the campus management system. After notification via e-mail the bachelor's thesis has to be **registered online** at the portal Campus Management for Students. The **admission** is made after verification of the required prerequisites and eventual further conditions. These steps have to be completed **before starting** the thesis (date of beginning).

The **duration of preparation** is three months. The bachelor thesis can be written also in English. It has to be completed by a **presentation** that is considered in the grading within one month after submission.

2.8 Interdisciplinary Qualifications, Internship

In order to obtain credit points (6 CP) for the module **Interdisciplinary Qualifications** (comp. also ER/SPO § 16) respective courses can be taken from the offer on key competences of the KIT House of Competence (HoC) as well as the Centre for Cultural and General Studies (ZAK), courses from the General Studies offered by ZAK or language courses of the 'Sprachenzentrum' (STK, center of language studies). In special cases the Examination Committee Bachelor Civil Engineering can accept or recognize further suitable courses as interdisciplinary qualifications beyond the mentioned options.

The registration to the courses from the offer on key competences of HoC and ZAK as well as to the language courses of STK is done directly at HoC, ZAK or STK. For final crediting of passed key competences of HoC, ZAK or STK the form assignment of non-assigned activity statements (*in German*) has to be submitted to the Study Program Service of the department ('Studiengangservice Bau-Geo-Umwelt').

The registration to a learning control of a course from the offer on General Studies of ZAK or another course accepted by the Examination Committee Bachelor Civil Engineering shall be done online. That the Study Program Service of the department ('Studiengangservice Bau-Geo-Umwelt') can select the respective learning control in the campus management system in time within the registration period, it has to be informed via E-Mail. For the courses accepted by the Examination Committee Bachelor Civil Engineering the respective approval has to be provided.

An **Internship** is strongly recommended even if it not included in the curriculum. It offers important insights in the professional practice and there interdisciplinary qualifications can be obtained, among other things with regard to capacity in communication and teamwork. The Internship can be completed in companies of the construction industry or in consultant companies, which are in charge of planning, construction or maintenance of construction activities. The students shall become acquainted with and reflect the internal process management and the cooperation between the respective contracting parties. If the duration of the internship is at least 6 weeks the crediting of CPs is possible in the context of the module Interdisciplinary Qualifications. The proof is made by an internship report, that has to contain the carried out work as well as the explanation of the obtained interdisciplinary qualifications. The 'Praktikumsamt' (internship office) defines the extent of the credited CPs on base of the submitted proof. At maximum a recognition up to 3 CP is possible. A consultation about the recognition of an internship is recommended in advance.

The module Interdisciplinary Qualifications is completed without grade. After consultation with the lecturer a grade can be reported but is not included in the calculation of the grade of the module.

2.9 Additional accomplishments, prior master's transfer account

An **additional accomplishment** is a voluntarily taken examination, which is not considered in the overall grade (comp. ER/SPO § 15). In total, additional accomplishments can be taken in extent of 30 CP at maximum from the entire offer of KIT.

The examination in the desired additional accomplishment shall be registered online by the student in time within the registration period. Not graded accomplishments not taken from the modules Basics in Engineering II or Supplements in Engineering can be selected as additional accomplishments within the module 'Further Examinations'. There not available and desired additional accomplishment or additional modules respectively must be forwarded via e-mail to the Study Program Service of the department ('Studiengangservice Bau-Geo-Umwelt'). This makes the desired selection available in the campus management system so that the registration to the exam is possible online. By request to the Examination Committee Bachelor Civil Engineering the assignment can by changed subsequently.

All taken additional accomplishments are listed in the transcript of records. If a module is completed by the taken additional accomplishment, this module can be included in the bachelor degree certificate as additional module on request by the student.

An internship (see chapt. 2.8) of at minimum 4 weeks and at maximum 8 weeks duration can also be recognized as additional accomplishment with 10 CP at maximum. A description of interdisciplinary qualifications is not required.

Furthermore, up to 30 CP, or five modules respectively, from the master degree programs Civil Engineering, Engineering Structures, Mobility and Infrastructure or Water Science and Engineering can be selected on the **prior master's transfer account** (comp. ER/SPO § 15a), as far as already modules in extent of 120 credit points are

completed within the bachelor studies. This shall enable an easier transition to the consecutive master studies out of the standard period of study. The desired prior master's examination shall be transferred also in time to the Study Program Service of the department ('Studiengangservice Bau-Geo-Umwelt') via e-mail within the registration period. This makes the desired selection available in the campus management system so that the registration to the exam is possible online.

It has to be considered that a prior master's examination is credited within the bachelor studies and will be transferred to the master studies only by request and <u>not</u> automatically. The request of transfer to the master studies has to be submitted at the beginning of the master studies, i.e. the first semester.

3 Further information

3.1 About the module handbook . . .

The **module handbook** is the relevant document in which the structure of the program is described and therefore it provides assistance for the orientation during the study. It describes the modules belonging to the program and contains information about:

- the extent of the modules (in CP),
- the placement of the module in the course of study,
- the learning outcomes of the modules,
- type of assessment and examinations,
- the computation of the grade of the module,
- the interdependencies of the modules, required prerequisites respectively, and
- the associated courses (HpW).

In addition to the module handbook the **course catalog** and the institutes (web pages) provide important information. These are updated every semester concerning variable course details (e.g. time and location of the course) as well as short-term modifications.

3.2 About module examinations, examination committee . . .

The module examinations can be taken as a general examination or as several partial examinations. If the module examination is offered as a **general examination**, the entire content of the module will be reviewed in a single examination. If the module examination consists of **partial examinations**, the content of each course will be reviewed in corresponding partial examinations. Then, the module examination can be taken over several semesters. Also not graded accomplishments can be part of the module examination, e.g. as examination prerequisites.

The registration to examinations, also to not graded accomplishments and examination prerequisites, takes place online via the portal Campus Management for Students, https://campus.studium.kit.edu/english/index.php. The following functions can be accessed there after login:

- register to and deregister from examinations
- retrieve examination results
- print transcript of records

A successful online registration covers the admission to the examination. A confirmation for this is provided by the portal Campus Management for Students and can serve as proof for a made registration in case of doubts. If there occurs a problem with an attempt of an online registration the Study Program Service of the department ('Studiengangservice Bau-Geo-Umwelt') or the Examination Committee Bachelor has to be informed as soon as possible in addition to the examiner.

The Examination Committee Bachelor Civil Engineering (http://www.ifv.kit.edu/pab.php) is responsible for all legal questions in the context of examinations. For instance, all requests on second repetition, extension of deadlines or recognitions are submitted to this. It decides about their approval.

3.3 About changes in module offer . . .

The offer of modules changes in the course of the semesters. During the bachelor studies no changes are expected in general. However, courses and the assigned learning controls or the module examinations may change. If possible, such changes are announced in the module handbook with sufficient time in advance, at latest at the beginning of the semester as from they are valid.

Usually, it is valid that students who started a module (s. selection and completion of a module) can complete this in that form as started. The respective learning controls are provided onwards over a certain time period usually at least one semester after time of change. In general, a consultation with the examiner is recommended in such a case.

3.4 Contact persons

Dean of Study Affairs:

Prof. Dr. Peter Vortisch
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Study Program Coordination:

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Examination Committee Bachelor Civil Engineering:

Prof. Dr.-Ing. Peter Vortisch (chairperson)
Anna Reiffer, M.Sc. (person in charge)
Claude Weyland, M.Sc. (person in charge)
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consultation: Mo. 14.00 – 15.00 h
Email: pab@bgu.kit.edu
Web: http://www.ifv.kit.edu/pab.php

Students' Advisory Service:

Dr.-Ing. Harald Schneider
Institute of Technology and Management in Construction, Bldg. 50.31, R. 008 (ground floor)
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Study Program Service ('Studiengangservice Bau-Geo-Umwelt'):

KIT Department of Civil Engineering, Geo and Environmental Sciences, Bldg. 10.81, R. 312
consultation: s. http://www.bgu.kit.edu/english/studiengangservice.php
Email: studiengangservice@bgu.kit.edu
Web: http://www.bgu.kit.edu/english/studiengangservice.php

Fachschaft:

Students in Civil Engineering, Bldg. 10.81 (Altes Bauing. Geb.), R. 317.1 (3rd floor)
consultation: s. http://www.fs-bau.kit.edu
Phone: 0721/608-43895
Email: fsbau@lists.kit.edu
Web: http://www.fs-bau.kit.edu

4 Current changes

In the following, the important changes are listed as from summer term 2021. Although this process was done with great care, other/minor changes may exist.

none

5 Modules

M 5.1 Module: Structural Analysis (bauiBFP1-BSTAT) [M-BGU-101752]

Responsible: Prof. Dr.-Ing. Werner Wagner
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: Structural Analysis

Credits	Recurrence	Duration	Language	Level	Version
10	Each summer term	2 terms	German	3	1

Mandatory			
T-BGU-103387	Structural Analysis I	5 CR	Wagner
T-BGU-103388	Structural Analysis II	5 CR	Wagner

Competence Certificate
- 'Teilleistung' T-BGU-103387 with written examination according to § 4 Par. 2 No. 1
- 'Teilleistung' T-BGU-103388 with written examination according to § 4 Par. 2 No. 1
details about the learning controls see at the respective 'Teilleistung'

Competence Goal
The students can assign and apply the essential steps for modeling and calculating 2D- and 3D-beam structures. Hence, they are able to calculate and interpret the displacement and stress resultant fields for the design and construction of associated structures. The students practice logical and abstract thinking by deriving and applying methods of structural analysis. They transfer this knowledge to the application of computer based computations and they evaluate their results.

Module grade calculation
grade of the module is CP weighted average of grades of the partial exams

Prerequisites
none

Content
Calculation of statical determined and un-determined 2D- and 3D-Beam Structures:

- idealisations
- load bearing behaviour
- stress resultants
- discrete displacements
- controls
- symmetry
- application of numerical programs
- influence lines, KV, VV
- FEM for 2d truss structures
- prestressing

Outlook: surface structures, FE-modeling, nonlinearities

Recommendation
none

Annotation

Workload
contact hours (1 HpW = 1 h x 15 weeks):

- Structural Analysis I lecture, exercise, tutorial: 75 h
- Structural Analysis II lecture, exercise, tutorial: 75 h

independent study:

- preparation and follow-up lectures, exercises Structural Analysis I: 15 h
- examination preparation Structural Analysis I: 60 h
- preparation and follow-up lectures, exercises Structural Analysis II: 15 h
- examination preparation Structural Analysis II: 60 h

total: 300 h

Literature
Vorlesungsmanuskript Baustatik I
Vorlesungsmanuskript Baustatik II
Krätzig, W.B., Harte, R., Meskouris, K., Wittek, U. (1999): Tragwerke 1 - Theorie und Berechnungsmethoden statisch bestimmter Stabtragwerke, Springer.
Krätzig, W.B., Harte, R., Meskouris, K., Wittek, U. (2005): Tragwerke 2 - Theorie und Berechnungsmethoden statisch unbestimmter Stabtragwerke, Springer.
Wunderlich, W., Kiener, G. (2004): Statik der Stabtragwerke, Teubner.

M 5.2 Module: Basics of Reinforced Concrete (bauiBFP2-KSTR.A) [M-BGU-103696]

Responsible: Prof. Dr.-Ing. Lothar Stempniewski
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: Structural Engineering

Credits	Recurrence	Duration	Language	Level	Version
6	Each winter term	2 terms	German	3	1

Mandatory			
T-BGU-103389	Basics of Reinforced Concrete I	4 CR	Stempniewski
T-BGU-103390	Basics of Reinforced Concrete II	2 CR	Stempniewski

Competence Certificate
- 'Teilleistung' T-BGU-103389 with written examination according to § 4 Par. 2 No. 1
- 'Teilleistung' T-BGU-103390 with written examination according to § 4 Par. 2 No. 1

details about the learning controls see at the respective 'Teilleistung'

Competence Goal
The students can explain the principle load-bearing behavior of the composite material reinforced concrete. They are able to combine the already gained knowledge from the modules in mechanics, 'Structural Analysis', 'Building Materials' and 'Structural Design', to transfer and apply it to reinforced concrete. Hence, they are able to design simple structures for the limit of load-bearing capacity by means of the recent norms and structural elements with respect to the arrangement of reinforcement.

Module grade calculation
grade of the module is CP weighted average of grades of the partial exams

Prerequisites
none

Content

- material properties and composite behavior of concrete and steel
- design of typical reinforced concrete sections for longitudinal and transverse forces

Recommendation
none

Annotation
none

Workload
contact hours (1 HpW = 1 h x 15 weeks):

- Basics of Reinforced Concrete I lecture, exercise: 45 h
- Basics of Reinforced Concrete II lecture/exercise: 30 h

independent study:

- preparation and follow-up lectures, exercises Basics of Reinforced Concrete I: 15 h
- examination preparation Basics of Reinforced Concrete I: 45 h
- preparation and follow-up lecture/exercises Basics of Reinforced Concrete II: 15 h
- examination preparation Basics of Reinforced Concrete II: 30 h

total: 180 h

M 5.3 Module: Basics in Steel and Timber Structures (bauiBFP3-KSTR.B) [M-BGU-103697]

Responsible: Prof. Dr.-Ing. Hans Joachim Blaß
                    Prof. Dr.-Ing. Thomas Ummenhofer

Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences

Part of: Structural Engineering

Credits	Recurrence	Duration	Language	Level	Version
8	Each winter term	1 term	German	3	1

Mandatory			
T-BGU-107462	Basics in Steel Structures	4 CR	Ummenhofer
T-BGU-107463	Basics in Timber Structures	4 CR	Blaß

Competence Certificate

- 'Teilleistung' T-BGU-107462 with written examination according to § 4 Par. 2 No. 1
- 'Teilleistung' T-BGU-107463 with written examination according to § 4 Par. 2 No. 1

details about the learning controls see at the respective 'Teilleistung'

Competence Goal

The students can describe the basic characteristics of the construction materials steel and timber. They can analyze and evaluate the the load carrying effect of steel and timber structures. The students can design common structural elements and joints. They are able to design structural elements endangering stability.

Module grade calculation

grade of the module is CP weighted average of grades of the partial exams

Prerequisites

Content

Basics in Steel Structures:

- materials
- structural types, support links
- tension and bending stressed bars
- connections in steel structures
- stability proofs

Basics in Timber Structures:

- basics: timber in construction, wood as building material, solid timber and glued laminated timber – strength classes, limit state design and safety format, volume and stress distribution effects on the strength
- design of elements: tension and compression, bending, shear and torsion, columns and buckling lengths, tapered, curved and pitched cambered beams, bracing
- joints: mechanical timber joints – general, joints with dowel-type fasteners – theory, nailed joints, bolted and dowelled joints, joints with screws, ring and shear-plate connector joints, toothed-plate connector joints

Recommendation

Annotation

Workload

contact hours (1 HpW = 1 h x 15 weeks):

- Basics in Steel Structures lecture, exercise: 45 h
- Basics in Timber Structures lecture, exercise: 45 h

independent study:

- preparation and follow-up lectures, exercises Basics in Steel Structures: 20 h
- examination preparation Basics in Steel Structures: 55 h
- preparation and follow-up lecture/exercises Basics in Timber Structures: 20 h
- examination preparation Basics in Timber Structures: 55 h

total: 240 h

Literature

lecture notes 'Basics in Steel Structures', Versuchsanstalt Stahl, Holz und Steine, KIT

DIN EN 1993-1-1, Dezember 2010: Eurocode 3: Bemessung und Konstruktion von Stahl-bauten – Teil 1-1: Allgemeine Bemessungsregeln und Regeln für den Hochbau: Beuth Verlag GmbH, Berlin.

DIN EN 1993-1-5, Dezember 2010: Eurocode 3: Bemessung und Konstruktion von Stahlbauten – Teil 1-5: Plattenförmige Bauteile: Beuth Verlag GmbH, Berlin.

DIN EN 1993-1-8, Dezember 2010: Eurocode 3: Bemessung und Konstruktion von Stahlbauten – Teil 1-8: Bemessung von Anschlüssen: Beuth Verlag GmbH, Berlin.

Blaß, H.J. & Sandhaas, C. (2016): Ingenieurholzbau – Grundlagen der Bemessung. KIT Scientific Publishing, Karlsruhe.

M 5.4 Module: Water and Environment (bauiBFP4-WASSER) [M-BGU-103405]

Responsible: PD Dr.-Ing. Stephan Fuchs
Dr.-Ing. Frank Seidel
Prof. Dr.-Ing. Erwin Zehe

Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences

Part of: Water and Environment

Credits	Recurrence	Duration	Language	Level	Version
12	Each winter term	2 terms	German	3	1

Mandatory			
T-BGU-106800	Water and Environment	12 CR	Fuchs, Nestmann, Zehe

Competence Certificate

- 'Teilleistung' T-BGU-106800 with written examination according to § 4 Par. 2 No. 1

details about the learning control see at the 'Teilleistung'

Competence Goal

The students can describe the relevant processes upon which the water cycle is based on as well as the tasks of a consulting engineer with respect to water management and sanitation. They can explain in which way particularly anthropogenic caused changes impact on hydrological processes, change these and what kind of requirements for the tasks in water management and sanitation result from these. They are able to plan and design water management measures and sanitary facilities for specific applications and functions by evaluating data and information and classifying them in to the context of their problem.

Module grade calculation

grade of the module is grade of the exam

Prerequisites

Content

The module imparts the fundamentals in the water sector essential for civil engineering. Here, the fundamental processes as well as technical aspects are considered. Important topics are:

- processes of the water cycle and water balance
- discharge and discharge generation
- soil hydrology
- modeling concepts in catchment hydrology
- principles and applications of open channel flow
- sediment transport in rivers
- facilities for discharge control / hydraulic structures
- processes in urban water management
- sanitary engineering
- storm water treatment
- waste water treatment

Recommendation

The course Environmental Physics / Energy (6200112) should be attended.

Annotation

Workload

contact hours (1 HpW = 1 h x 15 weeks):

- Hydraulic Engineering and Water Management lecture, exercise: 45 h
- Hydrology lecture, exercise: 45 h
- Water Supply and Sanitation lecture, exercise: 45 h

independent study:

- preparation and follow-up lectures, exercises Hydraulic Engineering and Water Management: 45 h
- preparation and follow-up lectures, exercises Hydrology : 45 h
- preparation and follow-up lectures, exercises Water Supply and Sanitation: 45 h
- examination preparation: 90 h

total: 360 h

M 5.5 Module: Mobility and Infrastructure (bauiBFP5-MOBIN) [M-BGU-103486]

Responsible: Prof. Dr.-Ing. Ralf Roos
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: Mobility and Infrastructure

Credits	Recurrence	Duration	Language	Level	Version
12	Each summer term	1 term	German	3	1

Mandatory			
T-BGU-106832	Term Papers Transportation	0 CR	Vortisch
T-BGU-106833	Term Papers Highway Engineering	0 CR	Roos
T-BGU-101791	Mobility and Infrastructure	12 CR	Roos, Vortisch

Competence Certificate
- 'Teilleistung' T-BGU-106832 with not graded accomplishment according to § 4 Par. 3 as examination prerequisite
- 'Teilleistung' T-BGU-106833 with not graded accomplishment according to § 4 Par. 3 as examination prerequisite
- 'Teilleistung' T-BGU-101791 with written examination according to § 4 Par. 2 No. 1
details about the learning controls see at the respective 'Teilleistung'

Competence Goal
The students can name and explain the basic methods and procedures to deal with general problems in spatial planning, transport studies and highway engineering. They are able to examine fundamental calculations related to the mentioned subjects and to use the required tools in a methodically appropriate way. Further, they can argue specialized, find, develop and evaluate solutions.

Module grade calculation
grade of the module is grade of the exam

Prerequisites
none

Content
The module is divided into 3 parts:
The part Spatial Planning and Planning Law involves basic tasks and problems on different planning levels such as land use and conflicts, provision of services and infrastructure as well as their costs, planning on local, regional, national and European level.
The fundamentals of transportation planning (convention for analyses, surveys of travel behaviour) and traffic engineering are covered by the part Transport Studies.
The part Design Basics in Highway Engineering involves road network layout, principles of highway design, driving dynamics, earthworks as well as pavements and their dimensioning.

Recommendation
none

Annotation
None

Workload

contact hours (1 HpW = 1 h x 15 weeks):

- Spatial Planning and Planning Law lecture, exercise: 45 h
- Transportation lecture, exercise: 45 h
- Design Basics in Highway Engineering lecture, exercise:45 h

independent study:

- preparation and follow-up lectures, exercises Spatial Planning and Planning Law: 30 h
- preparation and follow-up lectures, exercises Transportation: 15 h
- preparation and follow-up lectures, exercises Design Basics in Highway Engineering: 15 h
- preparation of student research papers: 80 h
- examination preparation: 80 h

total: 355 h

M 5.6 Module: Technology and Management in Construction (bauiBFP6-TMB) [M-BGU-101754]

Responsible: Prof. Dr.-Ing. Shervin Haghsheno
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: Technology and Management in Construction Operation

Credits	Recurrence	Duration	Language	Level	Version
11	Each summer term	1 term	German	3	1

Mandatory			
T-BGU-103392	Technology and Management in Construction	11 CR	Haghsheno

Competence Certificate
- 'Teilleistung' T-BGU-103392 with written examination according to § 4 Par. 2 No. 1

details about the learning control see at the 'Teilleistung'

Competence Goal
After completion of the module Technology and Management in Construction Operation the students are able to work on common technical and economic problems in construction operation.During the lecture Construction Technology the students obtain the ability to compare different construction technologies. They can list different machinary and methods and compare and evaluate their advantages and disadvantages. They are able to run basic production calculations in different fields of construction management with respect to their later professional life. They can apply common design tools for this purpose. Furthermore, they understand different theoretical topics of different fields in construction management and can these explain and interlink with each other.In the economic field, students can perform calculations of internal and external accounting. You can perform simple bookings for creating a balance sheet, select investment alternatives using appropriate methods of investment appraisal and are able to discuss the processes involved in the calculation of building projects. Furthermore, students can explain the pros and cons of different topics of the construction sector. On selected topics in the construction contract law, students can take a position.In the area of facility and real estate management, they can describe the specifics of tenancy and perform a service charge settlement. Furthermore, they understand the growing importance of sustainability in real estate management.

Module grade calculation
grade of the module is grade of the exam

Prerequisites
none

Content

- preliminary project phases and calculation methods
- work preparation and construction work
- construction techniques in structural engineering, underground engineering and earthworks
- basics of machine technology
- accounting and balancing
- financing and investment
- law of contract HOAI / VOB
- fundamentals of facility and real estate management

Recommendation
none

Annotation

Workload

contact hours (1 HpW = 1 h x 15 weeks):

- Construction Technology lecture, exercise: 60 h
- Economics in Construction Operation lecture, exercise: 45 h
- Facility- and Real Estate Management lecture: 15 h

independent study:

- preparation and follow-up lectures, exercises Construction Technology: 45 h
- preparation and follow-up lectures, exercises Economics in Construction Operation: 30 h
- preparation and follow-up lectures Facility- and Real Estate Management: 10 h
- examination preparation: 125 h

total: 330 h

M 5.7 Module: Geotechnical Engineering (bauiBFP7-GEOING) [M-BGU-103698]

Responsible: Dr.-Ing. Peter Kudella
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: Geotechnical Engineering

Credits	Recurrence	Duration	Language	Level	Version
11	Each summer term	2 terms	German	3	1

Mandatory			
T-BGU-107465	Geotechnical Engineering	11 CR	Kudella, Niemunis

Competence Certificate

- 'Teilleistung' T-BGU-107465 with written examination according to § 4 Par. 2 No. 1

details about the learning control see at the 'Teilleistung'

Competence Goal

The students have a scientifically sound understanding of the building material 'soil' with respect to its appearance and mechanical behaviour. They are able to describe the latter on base of soil mechanical and soil hydraulic models, to classify and to analyse respective field and laboratory tests.Because of their knowledge in usual geotechnical construction methods they can self-dependently select, design and describe the construction process for standard applications, such as building foundations, construction pit linings and tunnels adapted to the respective ground and groundwater conditions. Further, they are able to proof self-dependently ultimate limit states and serviceability limit states of those geotechnical constructions and natural slopes and to evaluate the results critically.

Module grade calculation

grade of the module is grade of the exam

Prerequisites

Content

The module imparts theoretical principles of soil behavior and demonstrates their practical application in designing of the most common geotechnical constructions. This covers:

- standards, codes and safety concepts in foundation engineering
- subsoil investigation, soil classification, soil properties and soil parameters
- permeability, seepage and groundwater management
- stress distributions in the subsoil, compression behavior and consolidation
- shear resistance of soils, stability of slopes and foundations
- design and settlement calculation of shallow foundations
- earth pressure and earth resistance, design of retaining structures and retaining walls for excavations
- pile foundations, deep foundations and caisson foundations in open water
- methods for soil improvement
- introduction to tunneling

Recommendation

The not graded accomplishment Geology in Civil Engineering [T-BGU-103395] shall be passed.

The attendance of the lecture accompanied tutorials (6200417, 6200517) is recommended. Likewise, the preparation of voluntary term papers is absolutely recommended as follow-up and preparation for the examination.

Annotation

Tutorials are offered accompanying to the lectures, the participation is strongly recommended. Preparation and follow-up of the lectures can be done by ones-own in terms of working on a student research project.

Workload

contact hours (1 HpW = 1 h x 15 weeks):

- Basics in Soil Mechanics lecture, exercise, tutorial: 90 h
- Basics in Foundation Engineering lecture, exercise, tutorial: 90 h

independent study:

- preparation and follow-up lectures, exercises Basics in Soil Mechanics: 30 h
- preparation and follow-up lectures, exercises Basics in Foundation Engineering: 30 h
- examination preparation: 90 h

total: 330 h

Literature

Triantafyllidis, Th. (2014): Arbeitsblätter und Übungsblätter Bodenmechanik

Triantafyllidis, Th. (2011): Arbeitsblätter und Übungsblätter Grundbau

Gudehus, G (1981): Bodenmechanik, F. Enke

Grundwissen „Der Ingenieurbau" (1995) Bd. 2: Hydrotechnik – Geotechnik, Ernst u. Sohn

Kolymbas, D.: Geotechnik, Springer-Verlag 5. Auflage

M 5.8 Module: Supplements in Engineering (bauiBFW11-INGERG) [M-BGU-103695]

Responsible: Prof. Dr.-Ing. Shervin Haghsheno
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: Supplements in Engineering

Credits	Recurrence	Duration	Language	Level	Version
8	Each term	2 terms	German	3	3

Election block: Compulsory electives Basic Subject Studies (8 credits)			
T-MATH-103326	Partial Differential Equations - Exam	2 CR	Grimm, Hochbruck, Neher
T-BGU-107466	Introduction to Continuum Mechanics (not graded)	2 CR	Seelig
T-BGU-107467	Physical Modelling in Hydraulic Engineering	2 CR	Seidel
T-BGU-107469	Project 'Plan, Design, Engineering'	2 CR	Roos
T-BGU-107470	Life Cycle Management	2 CR	Dehn, Lennerts
T-BGU-103399	Programming Exercises Introduction to Computer Programming II	0 CR	Uhlmann
T-BGU-103398	Introduction to Computer Programming II	2 CR	Uhlmann
T-BGU-107473	Computer Aided Design (CAD)	2 CR	Haghsheno
T-BGU-108942	Engineering Hydrology (not graded)	2 CR	Ehret
T-BGU-110821	Trades and Technology in Turnkey Construction	2 CR	Haghsheno

Competence Certificate
Four of the listed learning controls have to taken. They can be selected freely.

- 'Teilleistung' T-MATH-103326 with not graded accomplishment according to § 4 Par. 3
- 'Teilleistung' T-BGU-107466 with not graded accomplishment according to § 4 Par. 3
- 'Teilleistung' T-BGU-107467 with not graded accomplishment according to § 4 Par. 3
- 'Teilleistung' T-BGU-107469 with not graded accomplishment according to § 4 Par. 3
- 'Teilleistung' T-BGU-107470 with not graded accomplishment according to § 4 Par. 3
- 'Teilleistung' T-BGU-103399 with not graded accomplishment according to § 4 Par. 3, as examination prerequisite to 'Teilleistung' T-BGU-103398
- 'Teilleistung' T-BGU-103398 with not graded accomplishment according to § 4 Par. 3
- 'Teilleistung' T-BGU-107473 with not graded accomplishment according to § 4 Par. 3
- 'Teilleistung' T-BGU-108942 with not graded accomplishment according to § 4 Par. 3
- 'Teilleistung' T-BGU-110821 with not graded accomplishment according to § 4 Par. 3

details about the learning controls see at the respective 'Teilleistung'

Competence Goal
The students can describe additional knowledge of subject of the selcted courses and explain methods specific for those subjects. They can describe relationships and methods and can apply them to simple problems in civil engineering. Disciplinary goals are given at the respective course.

Module grade calculation
not graded

Prerequisites
none

Content
see at the respective courses

Recommendation

Annotation

There are four not graded accomplishments to the offered courses to be taken.

Workload

contact hours (1 HpW = 1 h x 15 weeks), depending on the selected course:

- Partial Differential Equations lecture, exercise: 30 h
- Introduction to Continuum Mechanics lecture: 30 h
- Physical Modelling in Hydraulic Engineering lecture: 30 h
- Project 'Plan, Design, Engineering' (PEK) appointment on site, project and team meetings, presentations: 16 h
- Life Cycle Management lecture/exercise: 30 h
- Introduction to Computer Programming II lecture, exercise: 30 h
- Computer Aided Design (CAD) lecture/exercise: 30 h
- Engineering Hydrology lecture/exercise: 30 h
- Trades and Technology in Turnkey Construction lecture/exercise: 30 h

independent study,depending on the selected course:

- preparation and follow-up lectures, exercises Partial Differential Equations: 10 h
- test preparation Partial Differential Equations: 20 h
- preparation and follow-up lectures Introduction to Continuum Mechanics: 15 h
- test preparation Introduction to Continuum Mechanics: 15 h
- preparation and follow-up lectures Physical Modelling in Hydraulic Engineering, preparation of experiment reports: 30 h
- preparation and follow-up project meetings 'PEK': 6 h
- preparation of group exercise 'PEK' (part per person): 35 h
- preparation and follow-up lecture/exercises Life Cycle Management: 10 h
- test preparation Life Cycle Management: 20 h
- preparation of programming exercises Introduction to Computer Programming II (prerequisite): 15 h
- test preparation Introduction to Computer Programming II: 15 h
- preparation of exercise report Computer Aided Design (CAD): 30 h
- preparation and follow-up lectures/exercises Engineering Hydrology: 10 h
- test preparation Engineering Hydrology: 20 h
- preparation and follow-up lectures/exercises Trades and Technology in Turnkey Construction: 10 h
- test preparation Trades and Technology in Turnkey Construction: 20 h

total: 240 h

M 5.9 Module: Statics of Rigid Bodies (bauiBGP01-TM1) [M-BGU-101745]

Responsible: Prof. Dr.-Ing. Peter Betsch
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: Mechanics

Credits	Recurrence	Duration	Language	Level	Version
7	Each winter term	1 term	German	1	1

Mandatory			
T-BGU-103377	Statics of Rigid Bodies	7 CR	Betsch

Competence Certificate
- 'Teilleistung' T-BGU-103377 with written examination according to § 4 Par. 2 No. 1, **part of the Orientation Examination according to § 8 Par. 1**
details about the learning control see at the 'Teilleistung'

Competence Goal
The students can deal with the performance of structures using the model of rigid bodies. Relying on a few basic principles of physics, they can describe systems of rigid bodies starting from simple bodies and implement the procedure with engineering methods. They can apply the principle methodical approaches to the description of technical systems, especially of civil engineering structures.

Module grade calculation
grade of the module is grade of the exam

Prerequisites
none

Content

- operations with forces – force systems -method of sections
- equilibrium of coplanar/spatial force systems
- force systems, acting on bodies - resultants
- force couple - moments
- reduction of spatial force systems
- equilibrium of rigid bodies
- technical tasks – conventions for support and support conditions – statically determined support, equilibrium conditions
- centroid of an assemblage and of continuous quantities, distributed loads/area loads
- coplanar systems of rigid bodies – technical systems
- internal forces and moments
- ideal truss systems – buildup principle – Ritter's method of sections
- section forces in beams – distribution of internal forces and moments – differential equation
- the principle of superposition
- friction stick and slip (static and kinetic) – belt friction
- work and energy - energy methods
- kinematics of coplanar motion – the principle of virtual work
- potential force, potential principles of work and energy
- stable and unstable equilibrium, stability

Recommendation
none

Annotation

Workload
contact hours (1 HpW = 1 h x 15 weeks):

- lecture, exercise, tutorial: 105 h

independent study:

- preparation and follow-up lectures, exercises: 45 h
- examination preparation: 60 h

total: 210 h

Literature
Gross / Hauger / Schröder Wall - Technische Mechanik 1

M 5.10 Module: Strength of Materials (bauiBGP02-TM2) [M-BGU-101746]

Responsible: Prof. Dr.-Ing. Thomas Seelig
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: Mechanics

Credits	Recurrence	Duration	Language	Level	Version
9	Each summer term	1 term	German	1	1

Mandatory			
T-BGU-103378	Strength of Materials	9 CR	Seelig

Competence Certificate
- 'Teilleistung' T-BGU-103378 with written examination according to § 4 Par. 2 No. 1

details about the learning control see at the 'Teilleistung'

Competence Goal
Based on the knowledge of the statics of rigid bodies students can name the basic concepts of the strength of materials and elastostatics. They can describe states of stresses and strains and combine with material laws. Thereby, they can determine displacements under general loads built-up by tension/compression, bending, shear and torsion. Hence, they are able to compute even statically indeterminate structures. They are able to compute general systems by means of energy principles and to investigate the stability of elastic structures. The derivation and application is focused in civil engineering problems.

Module grade calculation
grade of the module is grade of the exam

Prerequisites
none

Content

- tension / compression in bars – stresses/ strains/constitutive equations
- differential equation for bar
- statically determinate and indeterminate problems
- combined stress state – stress vector/ stress tensor
- principle stresses – Mohr's circle of stress – transformation of stresses and strains
- equilibrium conditions
- strain state, relation between stresses and strains – elastic materials
- yield and fracture criteria
- beam bending
- moments of inertia
- basic equations of pure bending
- normal stresses as the result of bending
- differential equations for beam bending
- single- and multi-field beam structures/superposition law
- shear stresses
- bending combined with normal force/skew bending unsymmetrical cross sections –
- torsion
- energy methods and deformation energy
- principle of virtual forces – truss systems, beam bending
- influence coefficients – Betti-Maxwell principle
- application of energy methods to statically indeterminate systems
- buckling

Recommendation
The module Statics of Rigid Bodies [bauiBGP01-TM1] shall be attended already.

Annotation

Workload

contact hours (1 HpW = 1 h x 15 weeks):

- lecture, exercise, tutorial: 120 h

independent study:

- preparation and follow-up lectures, exercises: 60 h
- examination preparation: 90 h

total: 270 h

Literature

Gross / Hauger / Schröder Wall - Technische Mechanik 2

M 5.11 Module: Dynamics (bauiBGP03-TM3) [M-BGU-101747]

Responsible: Prof. Dr.-Ing. Thomas Seelig
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: Mechanics

Credits	Recurrence	Duration	Language	Level	Version
6	Each winter term	1 term	German	2	2

Mandatory			
T-BGU-111041	Examination Prerequisite Dynamics	0 CR	Betsch
T-BGU-103379	Dynamics	6 CR	Seelig

Competence Certificate
- 'Teilleistung' T-BGU-111041 with not graded accomplishment according to § 4 Par. 3 as examination prerequisite
- 'Teilleistung' T-BGU-103379 with written examination according to § 4 Par. 2 No. 1

details about the learning control see at the 'Teilleistung'

Competence Goal
The students can deal with the principles, basic lwas and methods of the classical kinetics. They are able to to set up the equations of motion by means of the synthetic and the analytical method and to analyze the dynamical behavior of technical systems. They can describe vibration phenomenons and treat them mechanical-mathematically with the aid of the vibration theory.

Module grade calculation
grade of the module is grade of the exam

Prerequisites
none

Content

- kinematics of a single mass point (cartesian, polar and natural coordinates)
- kinetics of a single mass point: Newton's fundamental law, equations of equilibrium, work-energy equation
- kinetics of mass point systems
- principle of linear momentum (impact law)
- plane relative motion - kinematics and kinetics of rigid bodies (moments of inertia, principle of angular momentum)
- systems of rigid bodies: synthetic and analytic (Lagrangian equations and approaches, constraints, the degree of freedom, potential and non-potential forces)
- introduction into linear vibration theory: mechanical models, free and focused vibrations of 1 DOF-systems, vibration of 2 DOF-systems
- relative motion

Recommendation
the following modules should be attended already: Statics of Rigid Bodies [bauiBGP01-TM1], Strength of Material [bauiBGP02-TM2]

Annotation
IMPORTANT:

As from winter term 2020/21 homeworks are examination prerequisite.

Workload
contact hours (1 HpW = 1 h x 15 weeks):

- lecture, exercise, tutorial: 90 h

independent study:

- preparation and follow-up lectures, exercises: 45 h
- preparation of homeworks: 15 h
- examination preparation: 30 h

total: 180 h

Literature
Gross / Hauger / Schröder Wall - Technische Mechanik 3

M 5.12 Module: Hydromechanics (bauiBGP04-HYDRO) [M-BGU-101748]

Responsible: Prof. Dr. Olivier Eiff
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: Mechanics

Credits	Recurrence	Duration	Language	Level	Version
6	Each winter term	1 term	German	2	2

Mandatory			
T-BGU-107586	Examination Prerequisite Hydromechanics	0 CR	Eiff
T-BGU-103380	Hydromechanics	6 CR	Eiff

Competence Certificate
- 'Teilleistung' T-BGU-107586 with not graded accomplishment according to § 4 Par. 3 as examination prerequisite
- 'Teilleistung' T-BGU-103380 with written examination according to § 4 Par. 2 No. 1

details about the learning controls see at the respective 'Teilleistung'

Competence Goal
The students are able to identify and explain the fundamental concepts and relations in fluid mechanics. They are able to apply these concepts and relations to solve simple fluid mechanical problems. In their professional lives, the students can effectively use an introductory textbook on fluid mechanics, such as the one proposed, to obtain estimates and find solutions for fluid-flow related problems, with confidence.

Module grade calculation
grade of the module is grade of the exam

Prerequisites
none

Content

- properties of fluids
- fluid statics: pressure distribution in stagnant fluids, buoyancy
- the Bernoulli equation
- flow kinematics: velocity and acceleration fields, control volumes, Reynolds transport theorem
- finite control volume analysis: conservation of mass, momentum and energy
- introduction to differential analysis of fluid flow
- dimensional analysis, similitude and modeling
- viscous flows in pipes
- flow over immersed bodies
- open-channel flows

Recommendation
the following modules should be attended already:
Analysis and Linear Algebra [bauiBGP05-HM1]
Integration and Multivariate Analysis [bauiBGP06-HM2]
Statics of Rigid Bodies [bauiBGP01-TM1]

Annotation

Workload

contact hours (1 HpW = 1 h x 15 weeks):

- lecture, exercise, tutorial: 90 h

independent study:

- preparation and follow-up lectures, exercises: 45 h
- preparation of homeworks: 15 h
- examination preparation: 30 h

total: 180 h

Literature

Munson, B.R., Okiishi, T.H. Huebsch, W. W., Rothmayer, A. P. (2010) Fluid Mechanics SI Version, 7th edition, Wiley.

Elger, D.F., LeBret, B.A., Crowe, C.T., Roberson, J.A. (2016) Engineering Fluid Mechanics, 11th edition, International Student Version, Wiley

M 5.13 Module: Analysis and Linear Algebra (bauiBGP05-HM1) [M-MATH-101716]

Responsible: Prof. Dr. Marlis Hochbruck
Organisation: KIT Department of Mathematics
Part of: Mathematics

Credits	Recurrence	Duration	Language	Level	Version
9	Each winter term	1 term	German	3	1

Mandatory			
T-MATH-103325	Analysis and Linear Algebra - Exam	9 CR	Grimm, Hochbruck, Neher

Competence Certificate
- 'Teilleistung' T-MATH-103325 with written examination according to § 4 Par. 2 No. 1

details about the learning control see at the 'Teilleistung'

Module grade calculation
grade of the module is grade of the exam

Prerequisites
none

Recommendation
none

Workload
contact hours (1 HpW = 1 h x 15 weeks):

- lecture, exercise, tutorial: 120 h

independent study:

- preparation and follow-up lectures, exercises: 60 h
- examination preparation: 90 h

total: 270 h

M 5.14 Module: Integration and Multivariate Analysis (bauiBGP06-HM2) [M-MATH-101714]

Responsible: Prof. Dr. Marlis Hochbruck
Organisation: KIT Department of Mathematics
Part of: Mathematics

Credits	Recurrence	Duration	Language	Level	Version
9	Each summer term	1 term	German	3	1

Mandatory			
T-MATH-103324	Integration and Multivariate Analysis - Exam	9 CR	Grimm, Hochbruck, Neher

Competence Certificate
- 'Teilleistung' T-MATH-103324 with written examination according to § 4 Par. 2 No. 1

details about the learning control see at the 'Teilleistung'

Module grade calculation
grade of the module is grade of the exam

Prerequisites
none

Recommendation
none

Workload
contact hours (1 HpW = 1 h x 15 weeks):

- lecture, exercise, tutorial: 120 h

independent study:

- preparation and follow-up lectures, exercises: 60 h
- examination preparation: 90 h

total: 270 h

M   5.15 Module: Applied Statistics (bauiBGP07-STATS) [M-BGU-101749]

Responsible:	Dr. Frank Hase
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	Mathematics

Credits	Recurrence	Duration	Language	Level	Version
3	Each summer term	1 term	German	2	1

Mandatory			
T-BGU-103381	Applied Statistics	3 CR	Hase

Competence Certificate
- 'Teilleistung' T-BGU-103381 with written examination according to § 4 Par. 2 No. 1

details about the learning control see at the 'Teilleistung'

Competence Goal
The students own basic understanding of the general principles and applications of statistical methods in the field of civil engineering. By this knowledge they can select appropriate statistical methods and evaluate their applicability for specific problems. They can run own calculations and interpret the results.

Module grade calculation
grade of the module is grade of the exam

Prerequisites
none

Content

- statistical analysis of random samples (statistical values and frequency distribution)
- description of the statistical population by probability density function
- selected probability density functions for discrete and continuous random variables
- confidence intervals and theory of testing
- two-dimensional probability density distribution and linear regression analysis

Recommendation
none

Annotation
none

Workload
contact hours (1 HpW = 1 h x 15 weeks):

- lecture/exercise: 30 h

independent study:

- preparation and follow-up lecture/exercises: 15 h
- examination preparation: 45 h

total: 90 h

Literature
Kreyszig, E.: Statistische Methoden und ihre Anwendung; Verlag Vandenhoeck und Ruprecht
Plate, E. (1993): Statistik und angewandte Wahrscheinlichkeitslehre für Bauingenieure, Verlag Ernst und Sohn, Berlin
Sachs, L. (1969): Statistische Auswertemethoden; Springer-Verlag

M 5.16 Module: Differential Equations (bauiBGP08-HM3) [M-MATH-101712]

Responsible: Prof. Dr. Marlis Hochbruck
Organisation: KIT Department of Mathematics
Part of: Mathematics

Credits	Recurrence	Duration	Language	Level	Version
4	Each winter term	1 term	German	3	1

Mandatory			
T-MATH-103323	Differential Equations - Exam	4 CR	Grimm, Hochbruck, Neher

Competence Certificate
- 'Teilleistung' T-MATH-103323 with written examination according to § 4 Par. 2 No. 1

details about the learning control see at the 'Teilleistung'

Module grade calculation
grade of the module is grade of the exam

Prerequisites
none

Recommendation
none

Workload
contact hours (1 HpW = 1 h x 15 weeks):

- lecture, exercise: 45 h

independent study:

- preparation and follow-up lectures, exercises: 30 h
- examination preparation: 45 h

total: 120 h

M 5.17 Module: Building Materials (bauiBGP09-BSTOF) [M-BGU-101750]

Responsible: Prof. Dr.-Ing. Frank Dehn
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: Building Materials and Structural Design

Credits	Recurrence	Duration	Language	Level	Version
12	Each summer term	2 terms	German	2	1

Mandatory			
T-BGU-103382	Theory of Building Materials	3 CR	Dehn
T-BGU-103383	Building Materials	9 CR	Dehn

Competence Certificate
- 'Teilleistung' T-BGU-103382 with written examination according to § 4 Par. 2 No. 1, **part of the Orientation Examination according to § 8 Par. 1**
- 'Teilleistung' T-BGU-103383 with written examination according to § 4 Par. 2 No. 1

details about the learning controls see at the respective 'Teilleistung'

Competence Goal
The students can name the fundamental terms of material science and the specific properties of numerous building materials. They can describe the physical, chemical and mechanical relations, which result from the material structure and its time- and load-dependent modification. They are ableto explain the relationships between structure and properties of building materials. By using the learnt basic knowledge the students can name and describe methods of production, moulding, processing and protection of the durability of building materials. Furthermore, they can specify and evaluate the fundamentals for selecting applicable materials considering environmental aspects and sustainability as well as the building material phenomena by several examples from building practice.

Module grade calculation
grade of the module is CP weighted average of the grades of the partial exams

Prerequisites
none

Content
In this module the fundamental terms and principles of the atomic and textural structure and the essential mechanical and physical properties of building materials (e. g. steel, concrete, ceramics, glasses, polymers, timber, bituminous materials) are introduced. Especially the production and the source materials as well as their influence on the rheological, chemo-physical and mechanical properties of the building materials are in the focus of interest. Damage types and processes in connection with the durability of building materials are another essential part of the module. In addition the legal regulations regarding testing, supervision and certification of building materials are briefly introduced.

Recommendation
none

Annotation

Workload

contact hours (1 HpW = 1 h x 15 weeks):

- Theory of Building Materials lecture, exercise: 30 h
- Building Materials lecture, exercise: 90 h

independent study:

- preparation and follow-up lectures, exercises Theory of Building Materials: 15 h
- examination preparation Theory of Building Materials: 45 h
- preparation and follow-up lectures, exercises Building Materials: 60 h
- examination preparation Building Materials: 120 h

total: 360 h

Literature

lecture notes 'Baustoffkunde und Konstruktionsbaustoffe'

M 5.18 Module: Structural Design (bauiBGP10-BKONS) [M-BGU-101751]

Responsible: Prof. Dr.-Ing. Hans Joachim Blaß
                   Prof. Dr.-Ing. Frank Dehn
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: Building Materials and Structural Design

Credits	Recurrence	Duration	Language	Level	Version
9	Each summer term	2 terms	German	2	1

Mandatory			
T-BGU-103384	Building Physics	3 CR	Dehn
T-BGU-103386	Structural Design	6 CR	Blaß

Competence Certificate
- 'Teilleistung' T-BGU-103384 with written examination according to § 4 Par. 2 No. 1, **part of the Orientation Examination according to § 8 Par. 1**
- 'Teilleistung' T-BGU-103386 with written examination according to § 4 Par. 2 No. 1

details about the learning control see at the 'Teilleistung'

Competence Goal
The students can explain the normative requirements regarding the preservation of structures and the related methods of calculation. They can describe the physical problems concerning heat protection, moisture protection, noise control and fire protection as well as the application of the physical relationships on structures and construction elements. They can explain the load transfer and the distribution of forces in structures and with this they are able to determine loads on structures, to persecute the loads to the foundation based on the choice of load elements and to prove simple elements. They know the functionality of load elements and are able to design simple structures.

Module grade calculation
grade of the module is CP weighted average of grades of the partial exams

Prerequisites
none

Content

- heat and moisture transport processes
- heat insulation in winter and summer
- development of molds and condensation protection
- principles of noise control and fire protection in buildings
- basis of design and safety concept
- load bearing systems and actions on structures
- roof, floor and wall constructions
- foundations

Recommendation
none

Annotation

Workload

contact hours (1 HpW = 1 h x 15 weeks):

- Building Physics lecture, exercise: 30 h
- Structural Design lecture, exercise, tutorial: 90 h

independent study:

- preparation and follow-up lectures, exercises Building Physics: 15 h
- examination preparation Building Physics: 45 h
- preparation and follow-up lectures, exercises Structural Design: 15 h
- examination preparation Structural Design: 75 h

total: 270 h

Literature

lecture notes "Bauphysik"

Lutz, Jenisch, Klopfer et. al: Lehrbuch der Bauphysik. Schall, Wärme, Feuchte, Licht, Brand, Klima. Teubner Verlag

Hohmann, Setzer, Wehling: Bauphysikalische Formeln und Tabellen. Wärmeschutz, Feuchteschutz, Schallschutz. Werner Verlag

Gösele, Schüle, Künzel: Schall, Wärme, Feuchte. Grundlagen, neue Erkenntnisse und Ausführungshinweise für den Hochbau. Bauverlag

lecture notes "Baukonstruktionslehre"

Lehrbuch der Hochbaukonstruktionen (Hrsg.: Cziesielski, Erich)

Baukonstruktion im Planungsprozess (Hrsg.: Franke, Lutz)

Porenbetonhandbuch

Informationsdienst Holz, Holzbau Handbuch, Reihe 2, Teil 3 - Dachbauteile, Folge 1 - Berechnungsgrundlagen

Informationsdienst Holz, Holzbau Handbuch, Reihe 2, Teil 3 - Dachbauteile, Folge 2 - Hausdächer

M 5.19 Module: Basics in Engineering I (bauiBGP15-INGGL1) [M-BGU-103693]

Responsible: Prof. Dr.-Ing. Markus Uhlmann
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: Basics in Engineering

Credits	Recurrence	Duration	Language	Level	Version
6	Each winter term	2 terms	German	1	1

Mandatory			
T-BGU-107449	Project Management (not graded)	2 CR	Haghsheno
T-BGU-103395	Geology in Civil Engineering	2 CR	Blum, Eckhardt
T-BGU-103397	Programming Exercises Introduction to Computer Programming I	0 CR	Uhlmann
T-BGU-103396	Introduction to Computer Programming I	2 CR	Uhlmann

Competence Certificate
- 'Teilleistung' T-BGU-107449 with not graded accomplishment according to § 4 Par. 3
- 'Teilleistung' T-BGU-103395 with not graded accomplishment according to § 4 Par. 3
- 'Teilleistung' T-BGU-103397 with not graded accomplishment according to § 4 Par. 3 as examination prerequisite to 'Teilleistung' T-BGU-103396
- 'Teilleistung' T-BGU-103396 with not graded accomplishment according to § 4 Par. 3

details about the learning controls see at the respective 'Teilleistung'

Competence Goal
The students can explain the principles from several related disciplines in their importance for civil engineering. They can describe relationships and operating principles and apply them to simple problems in civil engineering. Disciplinary goals are given at the respective course.

Module grade calculation
not graded

Prerequisites
none

Content
see at the respective courses

Recommendation
none

Annotation

Workload

contact hours (1 HpW = 1 h x 15 weeks):

- Project Management lecture/exercise: 30 h
- Geology in Civil Engineering lecture/exercise: 30 h
- Project Management lecture/exercise: 30 h

independent study:

- preparation and follow-up lecture/exercises Project Management: 10 h
- test preparation Project Management: 20 h
- preparation and follow-up lecture/exercises Geology in Civil Engineering: 10 h
- test preparation Geology in Civil Engineering: 20 h
- preparation of programming exercises Introduction to Computer Programming I: 15 h
- test preparation Introduction to Computer Programming I: 15 h

total: 180 h

Literature

see at the respective courses

M 5.20 Module: Basics in Engineering II (bauiBGW8-INGGL2) [M-BGU-103694]

Responsible: Prof. Dr.-Ing. Ralf Roos
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: Basics in Engineering

Credits	Recurrence	Duration	Language	Level	Version
4	Each winter term	2 terms	German	1	1

Election block: Compulsory electives Basic Studies (2 items)			
T-BGU-107450	Planning Methodology	2 CR	Vortisch
T-BGU-103400	Chemistry of Building Materials	2 CR	Bogner
T-BGU-103401	Environmental Physics / Energy	2 CR	Nestmann
T-BGU-103402	Technical Illustrations	2 CR	Roos
T-BGU-103403	Laboratory Course	2 CR	Vortisch
T-BGU-101683	Surveying for Civil Engineers and Geophysicists (ungraded)	2 CR	Rösch

Competence Certificate
Two of the listed learning controls have to taken. They can be selected freely.

- 'Teilleistung' T-BGU-107450 with not graded accomplishment according to § 4 Par. 3
- 'Teilleistung' T-BGU-103400 with not graded accomplishment according to § 4 Par. 3
- 'Teilleistung' T-BGU-103401 with not graded accomplishment according to § 4 Par. 3
- 'Teilleistung' T-BGU-103402 with not graded accomplishment according to § 4 Par. 3
- 'Teilleistung' T-BGU-103403 with not graded accomplishment according to § 4 Par. 3
- 'Teilleistung' T-BGU-101683 with not graded accomplishment according to § 4 Par. 3

details about the learning controls see at the respective 'Teilleistung'

Competence Goal
The students can explain the principles from selected related disciplines in their importance for civil engineering. They can describe relationships and operating principles and apply them to simple problems from civil engineering. Disciplinary goals are given at the respective course.

Module grade calculation
not graded

Prerequisites
none

Content
see at the respective courses

Recommendation
none

Annotation
There are two not graded accomplishments of the offered courses to be taken.

Workload
contact hours (1 HpW = 1 h x 15 weeks), depending on the selected course:

- Planning Methodology lecture/exercise: 30 h
- Chemistry of Building Materials lecture: 30 h
- Environmental Physics / Energy lecture: 30 h
- Technical Illustrations lecture: 30 h
- Laboratory Course, conduction of 4 experiments (2 x 4 h each): 32 h
- Surveying for Civil Engineers and Geophysicists lecture, exercise: 30 h

independent study, depending on the selected course:

- preparation and follow-up lecture/exercises Planning Methodology: 15 h
- test preparation Planning Methodology: 15 h
- preparation and follow-up lectures Chemistry of Building Materials: 15 h
- test preparation Chemistry of Building Materials: 15 h
- preparation and follow-up lectures Environmental Physics / Energy, preparation of exercises (not graded accomplishment): 30 h
- preparation and follow-up lectures Technical Illustrations: 5 h
- preparation of 3 home exercises Technical Illustrations (part of not graded accomplishment): 15 h
- group exercise Technical Illustrations (part per person, part of not graded accomplishment): 15 h
- reporting experiments Laboratory Course (not graded accomplishment): 24 h
- preparation and follow-up lectures, exercises Surveying for Civil Engineers and Geophysicists: 20 h
- supervision of a surveying exercise (not graded accomplishment): 10 h

total: 120 h

Literature
see at the respective courses

M 5.21 Module: Module Bachelor Thesis (bauiBSC-THESIS) [M-BGU-103764]

Responsible: Prof. Dr.-Ing. Peter Vortisch
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: Bachelor Thesis

Credits	Recurrence	Duration	Language	Level	Version
12	Each term	1 term	German/English	3	1

Mandatory			
T-BGU-107601	Bachelor Thesis	12 CR	Vortisch

Competence Certificate
- 'Teilleistung' T-BGU-107601 with thesis and presentation according to § 14

details about the learning control see at the 'Teilleistung'

Competence Goal
The student is able to investigate a complex problem within a particular field of his choice in limited time, following scientific methods. He can search autonomously for literature, can find own approaches, can evaluate his results and can compare them with the state of the art. He is further able to represent clearly the essential matter and results in his bachelor thesis.

Module grade calculation
The grade of the module results from the grades of the Bachelor Thesis and the concluding presentation.

Prerequisites
Prerequisite for the admission to the module Bachelor Thesis is that the student has passed all module examinations from the Basic Studies according to § 20 Paragraph 2 in extent of 90 CP and module examinations of the Basic Subject Studies according to § 20 Paragraph 3 in extent of 35 CP. The examination committee decides about exceptions by request of the student (§14 Par. 1).

Modeled Conditions
The following conditions have to be fulfilled:

1. The following conditions have to be fulfilled:
    1. The field Mechanics must have been passed.
    2. The field Mathematics must have been passed.
    3. The field Building Materials and Structural Design must have been passed.
    4. The field Basics in Engineering must have been passed.
    5. The field Interdisciplinary Qualifications must have been passed.
2. You have to fulfill 4 of 8 conditions:
    1. The module M-BGU-101752 - Structural Analysis must have been passed.
    2. The module M-BGU-101754 - Technology and Management in Construction must have been passed.
    3. The module M-BGU-103405 - Water and Environment must have been passed.
    4. The module M-BGU-103486 - Mobility and Infrastructure must have been passed.
    5. The module M-BGU-103695 - Supplements in Engineering must have been passed.
    6. The module M-BGU-103698 - Geotechnical Engineering must have been passed.
    7. The module M-BGU-103696 - Basics of Reinforced Concrete must have been passed.
    8. The module M-BGU-103697 - Basics in Steel and Timber Structures must have been passed.

Content
The Bachelor Thesis is a first major written report and comprises the theoretical or experimental treatise of a complex problem within a particular field of civil engineering with scientific methods. The student chooses a particular field and can make proposals for the theme.

Recommendation
none

Annotation
information about the procedure regarding admission and registration of the Bachelor Thesis see chap. 2.7.

Workload
appr. 2 months net within a period of 3 months

M 5.22 Module: Interdisciplinary Qualifications (bauiBW0-UEQUAL) [M-BGU-103854]

Responsible:	Prof. Dr.-Ing. Peter Vortisch
Organisation:	University
Part of:	Interdisciplinary Qualifications

Credits	Recurrence	Duration	Language	Level	Version
6	Each term	2 terms	German	3	1

Election block: Interdisciplinary Qualifications (at least 6 credits)		
T-BGU-107788	Wildcard	1 CR	

Competence Certificate
according to taken courses

Competence Goal
Learning outcomes can be divided into three main complementary categories:1. Contextual Knowledge

- Students are aware of the cultural context of their position and are in a position to consider the views and interests of others (beyond the boundaries of subject, culture, and language).
- They have enhanced their ability to participate properly and appropriately in academic or public discussions.

2. Practical Focus

- Students have gained an insight into the routines of professional life.
- They have further developed their capability to learn.
- They have improved their scope of action by extending their knowledge of foreign languages.
- They are able to relate their field of experience to basic aspects of business administration and law.

3. Basic Competences

- The students autonomously acquire new knowledge in a planned, specific, and methodologically founded manner and use it for solving tasks and problems.
- They can evaluate own work.
- They possess efficient work techniques, can set priorities, take decisions, and assume responsibility.

Module grade calculation
not graded

Prerequisites
none

Content
With the key competences, the House of Competence (HoC) and the Centre for Cultural and General Studies (ZAK) offer a wide range of courses, which are bundled thematically for better orientation. The contents are explained in detail in the descriptions of the courses on the internet pages of HoC (https://studium.hoc.kit.edu/index.php/lehrangebot-gesamtuebersicht/; in German) and ZAK (https://www.zak.kit.edu/english/general_studies.php). Further, courses of the General Studies of ZAK or language courses of the 'Sprachenzentrums' (https://www.spz.kit.edu/index.php; in German) can be taken as Interdisciplinary Qualifications.

Recommendation
none

Annotation
In exceptional cases the Examination Committee can recognize further suitable courses as Interdisciplinary Qualifications which are not listed in the mentioned offers of Hoc and ZAK. By this, interdisciplinary qualifications obtained in an internship can be recognized with CPs by means of respective certification. Further information about the Interdisciplinary Qualifications (selection, registration, etc.) see Sect. 2.8.

In agreement with the examiner the passing of the respective course can be marked. This mark is not considered for the grade of the module as the module is not graded.

Workload

according to taken courses; see course description of HoC, lecture descriptions of ZAK, descriptions of language courses

M 5.23 Module: Further Examinations (bauiBZL) [M-BGU-103857]

Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: Additional Accomplishments

Credits 30	Recurrence Each term	Duration 2 terms	Language German	Level 3	Version 3

Election block: Additional Examinations (at most 30 credits)			
T-BGU-107450	Planning Methodology	2 CR	Vortisch
T-BGU-103400	Chemistry of Building Materials	2 CR	Bogner
T-BGU-103401	Environmental Physics / Energy	2 CR	Nestmann
T-BGU-103402	Technical Illustrations	2 CR	Roos
T-BGU-103403	Laboratory Course	2 CR	Vortisch
T-BGU-101683	Surveying for Civil Engineers and Geophysicists (ungraded)	2 CR	Rösch
T-MATH-103326	Partial Differential Equations - Exam	2 CR	Grimm, Hochbruck, Neher
T-BGU-107466	Introduction to Continuum Mechanics (not graded)	2 CR	Seelig
T-BGU-107467	Physical Modelling in Hydraulic Engineering	2 CR	Seidel
T-BGU-107469	Project 'Plan, Design, Engineering'	2 CR	Roos
T-BGU-107470	Life Cycle Management	2 CR	Dehn, Lennerts
T-BGU-103399	Programming Exercises Introduction to Computer Programming II	0 CR	Uhlmann
T-BGU-103398	Introduction to Computer Programming II	2 CR	Uhlmann
T-BGU-107473	Computer Aided Design (CAD)	2 CR	Haghsheno
T-BGU-108942	Engineering Hydrology (not graded)	2 CR	Ehret
T-BGU-110821	Trades and Technology in Turnkey Construction	2 CR	Haghsheno

Prerequisites
None

6 Courses

T 6.1 Course: Analysis and Linear Algebra - Exam [T-MATH-103325]

Responsible:	PD Dr. Volker Grimm Prof. Dr. Marlis Hochbruck Dr. Markus Neher
Organisation:	KIT Department of Mathematics
Part of:	M-MATH-101716 - Analysis and Linear Algebra

Type	Credits	Recurrence	Version
Written examination	9	Each term	1

Events					
WS 20/21	0131900	Advanced Mathematics I for Civil Engineering: Analysis and Linear Algebra	4 SWS	Lecture (V) / 🧩	Grimm
WS 20/21	0132000	Practice to 0131900	2 SWS	Practice (Ü) / 🧩	Grimm
WS 20/21	0132100	Supplement to 0131900	1 SWS	Lecture (V) / 🧩	Grimm

Legend: 📱 Online, 🧩 Blended (On-Site/Online), 🎤 On-Site, ✗ Cancelled

Competence Certificate
written exam, 90 min.

Prerequisites
none

Recommendation
none

Annotation

T 6.2 Course: Applied Statistics [T-BGU-103381]

Responsible: Dr. Frank Hase
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: M-BGU-101749 - Applied Statistics

Type	Credits	Recurrence	Version
Written examination	3	Each term	1

Events					
SS 2021	6200204	Applied Statistics	2 SWS	Lecture / Practice (VÜ) / 📱	Hase

Legend: 📱 Online, ⟡ Blended (On-Site/Online), 🎙 On-Site, ✗ Cancelled

Competence Certificate
written exam, 60 min.

Prerequisites
none

Recommendation
none

Annotation

T   6.3 Course: Bachelor Thesis [T-BGU-107601]

Responsible:	Prof. Dr.-Ing. Peter Vortisch
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-103764 - Module Bachelor Thesis

Type	Credits	Recurrence	Version
Final Thesis	12	Each term	1

Competence Certificate
thesis with a duration of 3 months and final presentation, according to § 14

Prerequisites
defined for the module Bachelor Thesis [M-BGU-103764]

Final Thesis
This course represents a final thesis. The following periods have been supplied:

Submission deadline	3 months
Maximum extension period	1 months
Correction period	6 weeks

Recommendation
none

Annotation
information about the procedure regarding admission and registration of the Bachelor Thesis see chap. 2.7.

T 6.4 Course: Basics in Steel Structures [T-BGU-107462]

Responsible:	Prof. Dr.-Ing. Thomas Ummenhofer
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-103697 - Basics in Steel and Timber Structures

Type	Credits	Recurrence	Version
Written examination	4	Each term	1

Events					
WS 20/21	6200504	Grundlagen des Stahlbaus	2 SWS	Lecture (V) / 🖥	Ummenhofer, Kuon
WS 20/21	6200505	Übungen zu Grundlagen des Stahlbaus	1 SWS	Practice (Ü) / 🖥	Kuon

Legend: 🖥 Online, ⚄ Blended (On-Site/Online), 🔊 On-Site, ✕ Cancelled

Competence Certificate
written exam, 70 min.

Prerequisites
The module examinations in den subjects Mechanics and Mathematics as well as the module examination Structural Design has to be passed all except two.

Modeled Conditions
You have to fulfill 7 of 9 conditions:

1. The module M-BGU-101745 - Statics of Rigid Bodies must have been passed.
2. The module M-BGU-101746 - Strength of Materials must have been passed.
3. The module M-BGU-101747 - Dynamics must have been passed.
4. The module M-BGU-101748 - Hydromechanics must have been passed.
5. The module M-MATH-101716 - Analysis and Linear Algebra must have been passed.
6. The module M-MATH-101714 - Integration and Multivariate Analysis must have been passed.
7. The module M-BGU-101749 - Applied Statistics must have been passed.
8. The module M-MATH-101712 - Differential Equations must have been passed.
9. The module M-BGU-101751 - Structural Design must have been passed.

Recommendation
none

Annotation

T   6.5 Course: Basics in Timber Structures [T-BGU-107463]

Responsible:	Prof. Dr.-Ing. Hans Joachim Blaß
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-103697 - Basics in Steel and Timber Structures

Type	Credits	Recurrence	Version
Written examination	4	Each term	1

Events					
WS 20/21	6200507	Basics in Timber Structures	2 SWS	Lecture (V) / 🖬	Blaß
WS 20/21	6200508	Excercises to Basics in Timber Structures	1 SWS	Lecture (V) / 🖬	Blaß, Assistenten

Legend: 🖬 Online, ⚙ Blended (On-Site/Online), 🔊 On-Site, ✗ Cancelled

Competence Certificate
written exam, 60 min.

Prerequisites
The module examinations in den subjects Mechanics and Mathematics as well as the module examination Structural Design has to be passed all except two.

Modeled Conditions
You have to fulfill 7 of 9 conditions:

1. The module M-BGU-101745 - Statics of Rigid Bodies must have been passed.
2. The module M-BGU-101746 - Strength of Materials must have been passed.
3. The module M-BGU-101747 - Dynamics must have been passed.
4. The module M-BGU-101748 - Hydromechanics must have been passed.
5. The module M-MATH-101716 - Analysis and Linear Algebra must have been passed.
6. The module M-MATH-101714 - Integration and Multivariate Analysis must have been passed.
7. The module M-BGU-101749 - Applied Statistics must have been passed.
8. The module M-MATH-101712 - Differential Equations must have been passed.
9. The module M-BGU-101751 - Structural Design must have been passed.

Recommendation
none

Annotation

T   6.6 Course: Basics of Reinforced Concrete I [T-BGU-103389]

Responsible:	Prof. Dr.-Ing. Lothar Stempniewski
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-103696 - Basics of Reinforced Concrete

Type	Credits	Recurrence	Version
Written examination	4	Each term	1

Events

WS 20/21	6200509	Grundlagen des Stahlbetonbaus I	2 SWS	Lecture (V) / 🖥	Stempniewski
WS 20/21	6200510	Übungen zu Grundlagen des Stahlbetonbaus I	1 SWS	Practice (Ü) / 🖥	Manny, Labbé Romo

Legend: 🖥 Online, ⚙ Blended (On-Site/Online), 🎤 On-Site, ✗ Cancelled

Competence Certificate
written exam, 90 min.

Prerequisites
The module examinations in den subjects Mechanics and Mathematics as well as the module examination Structural Design has to be passed all except two.

Modeled Conditions
You have to fulfill 7 of 9 conditions:

1. The module M-BGU-101745 - Statics of Rigid Bodies must have been passed.
2. The module M-BGU-101746 - Strength of Materials must have been passed.
3. The module M-BGU-101747 - Dynamics must have been passed.
4. The module M-BGU-101748 - Hydromechanics must have been passed.
5. The module M-MATH-101716 - Analysis and Linear Algebra must have been passed.
6. The module M-MATH-101714 - Integration and Multivariate Analysis must have been passed.
7. The module M-BGU-101749 - Applied Statistics must have been passed.
8. The module M-MATH-101712 - Differential Equations must have been passed.
9. The module M-BGU-101751 - Structural Design must have been passed.

Recommendation
none

Annotation

T 6.7 Course: Basics of Reinforced Concrete II [T-BGU-103390]

Responsible:	Prof. Dr.-Ing. Lothar Stempniewski
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-103696 - Basics of Reinforced Concrete

Type	Credits	Recurrence	Version
Written examination	2	Each term	1

Events					
SS 2021	6200601	Basics of Reinforced Concrete II	2 SWS	Lecture / Practice (VÜ) / 🗖	Stempniewski

Legend: 🗖 Online, ⬧ Blended (On-Site/Online), 🕭 On-Site, ✗ Cancelled

Competence Certificate
written exam, 60 min.

Prerequisites
The module examinations in den subjects Mechanics and Mathematics as well as the module examination Structural Design has to be passed all except two.

Modeled Conditions
You have to fulfill 7 of 9 conditions:

1. The module M-BGU-101745 - Statics of Rigid Bodies must have been passed.
2. The module M-BGU-101746 - Strength of Materials must have been passed.
3. The module M-BGU-101747 - Dynamics must have been passed.
4. The module M-BGU-101748 - Hydromechanics must have been passed.
5. The module M-MATH-101716 - Analysis and Linear Algebra must have been passed.
6. The module M-MATH-101714 - Integration and Multivariate Analysis must have been passed.
7. The module M-BGU-101749 - Applied Statistics must have been passed.
8. The module M-MATH-101712 - Differential Equations must have been passed.
9. The module M-BGU-101751 - Structural Design must have been passed.

Recommendation
none

Annotation

T 6.8 Course: Building Materials [T-BGU-103383]

Responsible: Prof. Dr.-Ing. Frank Dehn
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: M-BGU-101750 - Building Materials

Type Written examination	**Credits** 9	**Recurrence** Each term	**Version** 1

Events					
WS 20/21	6200307	Konstruktionsbaustoffe	4 SWS	Lecture (V) / 📱	Dehn
WS 20/21	6200308	Übungen zu Konstruktionsbaustoffe	2 SWS	Practice (Ü) / ✳	Dehn, Assistenten

Legend: 📱 Online, ✳ Blended (On-Site/Online), 🔊 On-Site, ✗ Cancelled

Competence Certificate
written exam, 120 min.

Prerequisites
none

Recommendation
none

Annotation

T 6.9 Course: Building Physics [T-BGU-103384]

Responsible:	Prof. Dr.-Ing. Frank Dehn
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-101751 - Structural Design

Type Written examination	**Credits** 3	**Recurrence** Each term	**Version** 1

Events					
SS 2021	6200208	Building Physics	1 SWS	Lecture (V) / 🖥	Dehn
SS 2021	6200209	Exercises to Building Physics	1 SWS	Practice (Ü) / 🖥	Mitarbeiter/innen

Legend: 🖥 Online, ♻ Blended (On-Site/Online), 🔊 On-Site, ✗ Cancelled

Competence Certificate
written exam, 60 min.

part of the Orientation Examination according to § 8 Par. 1, to be taken until the end of the examination period of the 2nd semester

Prerequisites
none

Recommendation
none

Annotation

T 6.10 Course: Chemistry of Building Materials [T-BGU-103400]

Responsible:	Dr. rer. nat. Andreas Bogner
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-103694 - Basics in Engineering II
	M-BGU-103857 - Further Examinations

Type	Credits	Recurrence	Version
Completed coursework	2	Each term	1

Events						
WS 20/21	6200108	Bauchemie	2 SWS	Lecture (V) / 📱	Bogner

Legend: 📱 Online, ⚄ Blended (On-Site/Online), 🔊 On-Site, ✕ Cancelled

Competence Certificate
written test, 30 min.

Prerequisites
none

Recommendation
none

Annotation

T 6.11 Course: Computer Aided Design (CAD) [T-BGU-107473]

Responsible:	Prof. Dr.-Ing. Shervin Haghsheno
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-103695 - Supplements in Engineering
	M-BGU-103857 - Further Examinations

Type	Credits	Recurrence	Version
Completed coursework	2	Each winter term	1

Events					
WS 20/21	6200520	Computer Aided Design (CAD)	2 SWS	Lecture / Practice (VÜ) / 📱	Haghsheno

Legend: 📱 Online, ⚙ Blended (On-Site/Online), 🔊 On-Site, ✕ Cancelled

Competence Certificate
production of CAD plans

Prerequisites
none

Recommendation
none

Annotation

T 6.12 Course: Differential Equations - Exam [T-MATH-103323]

Responsible:	PD Dr. Volker Grimm
	Prof. Dr. Marlis Hochbruck
	Dr. Markus Neher
Organisation:	KIT Department of Mathematics
Part of:	M-MATH-101712 - Differential Equations

Type	Credits	Recurrence	Version
Written examination	4	Each term	1

Events					
WS 20/21	0132200	Advanced Mathematics 3 for the Branch of Study Civil Engineering (differential equations)	2 SWS	Lecture (V) / 🖥	Neher
WS 20/21	0132300	Exercices to 0132200	1 SWS	Practice (Ü) / 🖥	Neher

Legend: 🖥 Online, ⚙ Blended (On-Site/Online), 🔊 On-Site, ✗ Cancelled

Competence Certificate
written exam, 60 min.

Prerequisites
none

Recommendation
none

Annotation

T   6.13 Course: Dynamics [T-BGU-103379]

Responsible:	Prof. Dr.-Ing. Thomas Seelig
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-101747 - Dynamics

Type	Credits	Recurrence	Version
Written examination	6	Each term	2

Events					
WS 20/21	6200301	Dynamik	2 SWS	Lecture (V) / 🖥	Betsch
WS 20/21	6200302	Übungen zu Dynamik	2 SWS	Practice (Ü) / 🖥	Mitarbeiter/innen
WS 20/21	6200303	Tutorien zu Dynamik	2 SWS	Tutorial (Tu) / 👊	Mitarbeiter/innen

Legend: 🖥 Online, ⚙ Blended (On-Site/Online), 👊 On-Site, ✗ Cancelled

Competence Certificate
written exam, 100 min.

Prerequisites
The Examination Prerequisite Dynamics (T-BGU-111041) has to be passed.

Modeled Conditions
The following conditions have to be fulfilled:

1. The course T-BGU-111041 - Examination Prerequisite Dynamics must have been passed.

Recommendation
none

Annotation

T   6.14 Course: Engineering Hydrology (not graded) [T-BGU-108942]

Responsible:	Dr.-Ing. Uwe Ehret
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-103695 - Supplements in Engineering
	M-BGU-103857 - Further Examinations

Type Completed coursework	**Credits** 2	**Recurrence** Each summer term	**Version** 1

Events					
SS 2021	6200617	Ingenieurhydrologie	2 SWS	Lecture / Practice (VÜ) / 📱	Ehret

Legend: 📱 Online, ⬡ Blended (On-Site/Online), 🔊 On-Site, ✗ Cancelled

Competence Certificate
written test, 60 min.

Prerequisites
none

Recommendation
none

Annotation
replaces the 'Teilleistung' Water Resource Management and Engineering Hydrology [T-BGU-107472] as from summer term 2019.

T   6.15 Course: Environmental Physics / Energy [T-BGU-103401]

Responsible: Prof. Dr. Franz Nestmann
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: M-BGU-103694 - Basics in Engineering II
M-BGU-103857 - Further Examinations

Type	Credits	Recurrence	Version
Completed coursework	2	Each winter term	1

Events					
WS 20/21	6200112	Umweltphysik / Energie	2 SWS	Lecture (V) / ▯	Nestmann

Legend: ▯ Online, ⚙ Blended (On-Site/Online), ● On-Site, ✗ Cancelled

Competence Certificate
attested exercises

Prerequisites
none

Recommendation
none

Annotation

T 6.16 Course: Examination Prerequisite Dynamics [T-BGU-111041]

Responsible:	Prof. Dr.-Ing. Peter Betsch
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-101747 - Dynamics

Type Completed coursework	Credits 0	Recurrence Each winter term	Expansion 1 terms	Version 1

Events					
WS 20/21	6200301	Dynamik	2 SWS	Lecture (V) / 🖥	Betsch
WS 20/21	6200302	Übungen zu Dynamik	2 SWS	Practice (Ü) / 🖥	Mitarbeiter/innen
WS 20/21	6200303	Tutorien zu Dynamik	2 SWS	Tutorial (Tu) / 👊	Mitarbeiter/innen

Legend: 🖥 Online, ⌘ Blended (On-Site/Online), 👊 On-Site, ✕ Cancelled

Competence Certificate
preparation of 3 exercises

Prerequisites
none

Recommendation
none

Annotation

T 6.17 Course: Examination Prerequisite Hydromechanics [T-BGU-107586]

Responsible: Prof. Dr. Olivier Eiff
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: M-BGU-101748 - Hydromechanics

Type	Credits	Recurrence	Version
Completed coursework	0	Each winter term	1

Events					
WS 20/21	6200304	Hydromechanik	2 SWS	Lecture (V) / 📱	Eiff
WS 20/21	6200305	Übungen zu Hydromechanik	2 SWS	Practice (Ü) / 📱	Dupuis
WS 20/21	6200306	Tutorien zu Hydromechanik	2 SWS	Tutorial (Tu) / 👆	Eiff, Dupuis, Tutoren

Legend: 📱 Online, 🔀 Blended (On-Site/Online), 👆 On-Site, ✕ Cancelled

Competence Certificate
preparation of 3 exercises

Prerequisites
none

Recommendation
none

Annotation

T   6.18 Course: Geology in Civil Engineering [T-BGU-103395]

Responsible:	Prof. Dr. Philipp Blum
	Prof. Dr. Jörg-Detlef Eckhardt
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-103693 - Basics in Engineering I

Type	**Credits**	**Recurrence**	**Version**
Completed coursework	2	Each term	1

Events					
SS 2021	6340101	Geologie im Bauwesen	2 SWS	Lecture / Practice (VÜ) / 📱	Blum, Eckhardt, Menberg

Legend: 📱 Online, 🔀 Blended (On-Site/Online), 🌐 On-Site, ✕ Cancelled

Competence Certificate
written test, 20 min.

Prerequisites
none

Recommendation
none

Annotation

T 6.19 Course: Geotechnical Engineering [T-BGU-107465]

Responsible:	Dr.-Ing. Peter Kudella
	apl. Prof. Dr. Andrzej Niemunis
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-103698 - Geotechnical Engineering

Type Written examination	**Credits** 11	**Recurrence** Each term	**Version** 1

Events					
WS 20/21	6200515	Basics in Foundation Engineering	2 SWS	Lecture (V) / ⚙	Kudella
WS 20/21	6200516	Exercises to Basics of Foundation Engineering	2 SWS	Practice (Ü) / ⚙	Kudella
WS 20/21	6200517	Tutorial to Basics in Foundation Engineering	2 SWS	Tutorial (Tu) / 🖥	N.N.
SS 2021	6200415	Basics in Soil Mechanics	2 SWS	Lecture (V) / 🖥	Niemunis
SS 2021	6200416	Exercises to Basics in Soil Mechanics	2 SWS	Practice (Ü) / 🖥	Niemunis, N.N.
SS 2021	6200417	Tutorials to Basics in Soil Mechanics	2 SWS	Tutorial (Tu) / 🖥	Mitarbeiter/innen

Legend: 🖥 Online, ⚙ Blended (On-Site/Online), 🔊 On-Site, ✗ Cancelled

Competence Certificate
written exam, 150 min.

Prerequisites
The module examinations in den subjects Mechanics and Mathematics as well as the module examination Structural Design has to be passed all except two.

Modeled Conditions
You have to fulfill 7 of 9 conditions:

1. The module M-BGU-101745 - Statics of Rigid Bodies must have been passed.
2. The module M-BGU-101746 - Strength of Materials must have been passed.
3. The module M-BGU-101747 - Dynamics must have been passed.
4. The module M-BGU-101748 - Hydromechanics must have been passed.
5. The module M-MATH-101716 - Analysis and Linear Algebra must have been passed.
6. The module M-MATH-101714 - Integration and Multivariate Analysis must have been passed.
7. The module M-BGU-101749 - Applied Statistics must have been passed.
8. The module M-MATH-101712 - Differential Equations must have been passed.
9. The module M-BGU-101751 - Structural Design must have been passed.

Recommendation
The preparation of voluntary term papers is strongly recommended as preparation for the examination.

Annotation

T   6.20 Course: Hydromechanics [T-BGU-103380]

Responsible: Prof. Dr. Olivier Eiff
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: M-BGU-101748 - Hydromechanics

Type	Credits	Recurrence	Version
Written examination	6	Each term	1

Events					
WS 20/21	6200304	Hydromechanik	2 SWS	Lecture (V) / 🖳	Eiff
WS 20/21	6200305	Übungen zu Hydromechanik	2 SWS	Practice (Ü) / 🖳	Dupuis
WS 20/21	6200306	Tutorien zu Hydromechanik	2 SWS	Tutorial (Tu) / ✊	Eiff, Dupuis, Tutoren

Legend: 🖳 Online, ❖ Blended (On-Site/Online), ✊ On-Site, ✗ Cancelled

Competence Certificate
written exam, 100 min.

Prerequisites
The Examination Prerequisite Hydromechanics (T-BGU-107586) has to be passed.

Modeled Conditions
The following conditions have to be fulfilled:

1. The course T-BGU-107586 - Examination Prerequisite Hydromechanics must have been passed.

Recommendation
none

Annotation

T 6.21 Course: Integration and Multivariate Analysis - Exam [T-MATH-103324]

Responsible:	PD Dr. Volker Grimm
	Prof. Dr. Marlis Hochbruck
	Dr. Markus Neher
Organisation:	KIT Department of Mathematics
Part of:	M-MATH-101714 - Integration and Multivariate Analysis

Type	Credits	Recurrence	Version
Written examination	9	Each term	1

Events					
SS 2021	0181300	Advanced Mathematics II for Civil Engineering: Differential and Integral Calculus	4 SWS	Lecture (V) / 🖥	Grimm
SS 2021	0181400	Practice to 0181300	2 SWS	Practice (Ü) / 🖥	Grimm

Legend: 🖥 Online, 🔀 Blended (On-Site/Online), 🎤 On-Site, ✗ Cancelled

Competence Certificate
written exam, 90 min.

Prerequisites
none

Recommendation
none

Annotation

T 6.22 Course: Introduction to Computer Programming I [T-BGU-103396]

Responsible: Prof. Dr.-Ing. Markus Uhlmann
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: M-BGU-103693 - Basics in Engineering I

Type	Credits	Recurrence	Version
Completed coursework	2	Each term	1

Events					
WS 20/21	6200114	Bauinformatik I	1 SWS	Lecture (V) / 📱	Uhlmann
WS 20/21	6200115	Übungen zu Bauinformatik I	1 SWS	Practice (Ü) / 📱	Uhlmann

Legend: 📱 Online, ⚅ Blended (On-Site/Online), 🎤 On-Site, ✕ Cancelled

Competence Certificate
written test, 30 min.

Prerequisites
The accomplishment 'Programming Exercises Introduction to Computer Programming I' (T-BGU-103397) has to be passed.

Modeled Conditions
The following conditions have to be fulfilled:

1. The course T-BGU-103397 - Programming Exercises Introduction to Computer Programming I must have been passed.

Recommendation
none

Annotation

T 6.23 Course: Introduction to Computer Programming II [T-BGU-103398]

Responsible: Prof. Dr.-Ing. Markus Uhlmann
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: M-BGU-103695 - Supplements in Engineering
M-BGU-103857 - Further Examinations

Type	Credits	Recurrence	Version
Completed coursework	2	Each summer term	1

Events					
SS 2021	6200422	Bauinformatik II	1 SWS	Lecture (V) / 🖥	Uhlmann
SS 2021	6200423	Übungen zu Bauinformatik II	1 SWS	Practice (Ü) / 🖥	Uhlmann

Legend: 🖥 Online, ⚃ Blended (On-Site/Online), 🔊 On-Site, ✗ Cancelled

Competence Certificate
written test, 30 min.

Prerequisites
The accomplishment 'Programming Exercises Introduction to Computer Programming II' (T-BGU-103399) has to be passed.

Modeled Conditions
The following conditions have to be fulfilled:

1. The course T-BGU-103399 - Programming Exercises Introduction to Computer Programming II must have been passed.

Recommendation
none

Annotation

T   6.24 Course: Introduction to Continuum Mechanics (not graded) [T-BGU-107466]

Responsible: Prof. Dr.-Ing. Thomas Seelig
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: M-BGU-103695 - Supplements in Engineering
M-BGU-103857 - Further Examinations

Type	Credits	Recurrence	Version
Completed coursework	2	Each summer term	1

Events					
SS 2021	6200421	Introduction to Continuum Mechanics	2 SWS	Lecture (V) / 🖥	Franke

Legend: 🖥 Online, ⚙ Blended (On-Site/Online), 🕭 On-Site, ✗ Cancelled

Competence Certificate
written test, 60 min.

Prerequisites
none

Recommendation
none

Annotation

T 6.25 Course: Laboratory Course [T-BGU-103403]

Responsible:	Prof. Dr.-Ing. Peter Vortisch
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-103694 - Basics in Engineering II
	M-BGU-103857 - Further Examinations

Type Completed coursework	**Credits** 2	**Recurrence** Each winter term	**Version** 1

Events					
WS 20/21	6200118	Laborpraktikum	SWS	Practical course (P)	Vortisch, Mitarbeiter/innen

Competence Certificate

reports (appr. 2-4 pages each) to 4 experiments at 4 selected institutes

Prerequisites

Recommendation

Annotation

T 6.26 Course: Life Cycle Management [T-BGU-107470]

Responsible:	Prof. Dr.-Ing. Frank Dehn
	Prof. Dr.-Ing. Kunibert Lennerts
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-103695 - Supplements in Engineering
	M-BGU-103857 - Further Examinations

Type	**Credits**	**Recurrence**	**Version**
Completed coursework	2	Each summer term	1

Events					
SS 2021	6200615	Life Cycle Management	2 SWS	Lecture / Practice (VÜ) / 📱	Lennerts, Dehn, Vogel, Kotan

Legend: 📱 Online, ⚜ Blended (On-Site/Online), 🌐 On-Site, ✗ Cancelled

Competence Certificate
written test, 60 min.

Prerequisites
none

Recommendation
none

Annotation

T 6.27 Course: Mobility and Infrastructure [T-BGU-101791]

Responsible:	Prof. Dr.-Ing. Ralf Roos
	Prof. Dr.-Ing. Peter Vortisch
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-103486 - Mobility and Infrastructure

Type	Credits	Recurrence	Version
Written examination	12	Each term	2

Events					
SS 2021	6200404	Spatial Planning and Planning Law	2 SWS	Lecture (V) / ▯	Wilske
SS 2021	6200405	Exercises to Spatial Planning and Planning Law	1 SWS	Practice (Ü) / ▯	Wilske, Mitarbeiter/innen
SS 2021	6200406	Transportation Systems	2 SWS	Lecture (V) / ▯	Vortisch
SS 2021	6200407	Exercises to Transportation Systems	SWS	Practice (Ü) / ▯	Vortisch, Mitarbeiter/innen
SS 2021	6200408	Design Basics in Highway Engineering	2 SWS	Lecture (V) / ▯	Roos, Zimmermann
SS 2021	6200409	Exercises to Design Basics in Highway Engineering	SWS	Practice (Ü) / ▯	Plachkova-Dzhurova, Zimmermann

Legend: ▯ Online, ✲ Blended (On-Site/Online), ● On-Site, ✗ Cancelled

Competence Certificate
written exam, 150 min.

Prerequisites
the 'Term papers Transportation' (T-BGU-106832) and the 'Term papers Highway Engineering' (T-BGU-106833) must be passed

Modeled Conditions
The following conditions have to be fulfilled:

1. The course T-BGU-106832 - Term Papers Transportation must have been passed.
2. The course T-BGU-106833 - Term Papers Highway Engineering must have been passed.

Recommendation
None

Annotation

T 6.28 Course: Partial Differential Equations - Exam [T-MATH-103326]

Responsible:	PD Dr. Volker Grimm
	Prof. Dr. Marlis Hochbruck
	Dr. Markus Neher
Organisation:	KIT Department of Mathematics
Part of:	M-BGU-103695 - Supplements in Engineering
	M-BGU-103857 - Further Examinations

Type	Credits	Recurrence	Version
Completed coursework (written)	2	Each term	1

Events					
SS 2021	0181600	Advanced Mathematics 4 for the Branch of Study Civil Engineering: Partial Differential Equations	2 SWS	Lecture (V) / 🖥	Neher
SS 2021	0181700	Exercises to 0181600	1 SWS	Practice (Ü) / 🖥	Neher

Legend: 🖥 Online, ⬖ Blended (On-Site/Online), 🎤 On-Site, ✗ Cancelled

Competence Certificate
written test, 60 min.

Prerequisites
none

Recommendation
none

Annotation

T 6.29 Course: Physical Modelling in Hydraulic Engineering [T-BGU-107467]

Responsible:	Dr.-Ing. Frank Seidel
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-103695 - Supplements in Engineering
	M-BGU-103857 - Further Examinations

Type	Credits	Recurrence	Version
Completed coursework	2	Each summer term	1

Events					
SS 2021	6200609	Physical Modelling in Hydraulic Engineering	2 SWS	Lecture (V) / 📱	Seidel

Legend: 📱 Online, ✡ Blended (On-Site/Online), 🔊 On-Site, ✗ Cancelled

Competence Certificate
2 reports on analyses of experiments, appr. 5 pages each

Prerequisites
none

Recommendation
none

Annotation

T 6.30 Course: Planning Methodology [T-BGU-107450]

Responsible:	Prof. Dr.-Ing. Peter Vortisch
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-103694 - Basics in Engineering II
	M-BGU-103857 - Further Examinations

Type	Credits	Recurrence	Version
Completed coursework	2	Each term	1

Events					
WS 20/21	6200104	Planning Methodology	2 SWS	Lecture / Practice (VÜ) / 📱	Soylu

Legend: 📱 Online, ⚙ Blended (On-Site/Online), 🎤 On-Site, ✗ Cancelled

Competence Certificate
written test, 30 min.

Prerequisites
none

Recommendation
none

Annotation

T 6.31 Course: Programming Exercises Introduction to Computer Programming I [T-BGU-103397]

Responsible:	Prof. Dr.-Ing. Markus Uhlmann
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-103693 - Basics in Engineering I

Type Completed coursework	Credits 0	Recurrence Each winter term	Version 1

Events					
WS 20/21	6200114	Bauinformatik I	1 SWS	Lecture (V) / 📱	Uhlmann
WS 20/21	6200115	Übungen zu Bauinformatik I	1 SWS	Practice (Ü) / 📱	Uhlmann

Legend: 📱 Online, ⚙ Blended (On-Site/Online), 🔊 On-Site, ✕ Cancelled

Competence Certificate
3 attested programming exercises

Prerequisites
none

Recommendation
none

Annotation

T   6.32 Course: Programming Exercises Introduction to Computer Programming II [T-BGU-103399]

Responsible: Prof. Dr.-Ing. Markus Uhlmann
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: M-BGU-103695 - Supplements in Engineering
M-BGU-103857 - Further Examinations

Type	Credits	Recurrence	Version
Completed coursework	0	Each summer term	1

Events					
SS 2021	6200422	Bauinformatik II	1 SWS	Lecture (V) / 📱	Uhlmann
SS 2021	6200423	Übungen zu Bauinformatik II	1 SWS	Practice (Ü) / 📱	Uhlmann

Legend: 📱 Online, 🔀 Blended (On-Site/Online), 🔲 On-Site, ✗ Cancelled

Competence Certificate
3 attested programming exercises

Prerequisites
none

Recommendation
none

Annotation

T 6.33 Course: Project Management (not graded) [T-BGU-107449]

Responsible:	Prof. Dr.-Ing. Shervin Haghsheno
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-103693 - Basics in Engineering I

Type	Credits	Recurrence	Version
Completed coursework	2	Each term	1

Events					
WS 20/21	6200106	Projektmanagement	2 SWS	Lecture / Practice (VÜ) / 📱	Haghsheno, Schneider

Legend: 📱 Online, ⬡ Blended (On-Site/Online), 🔊 On-Site, ✗ Cancelled

Competence Certificate
written test, 45 min.

Prerequisites
none

Recommendation
none

Annotation

T 6.34 Course: Project 'Plan, Design, Engineering' [T-BGU-107469]

Responsible:	Prof. Dr.-Ing. Ralf Roos
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-103695 - Supplements in Engineering
	M-BGU-103857 - Further Examinations

Type Completed coursework	**Credits** 2	**Recurrence** Each summer term	**Version** 1

Events					
WS 20/21	6200613	Project 'Plan, Design, Engineering'	2 SWS	Project (PRO) / ⚙	Roos, Chlond
SS 2021	6200613	Project 'Plan, Design, Engineering'	2 SWS	Project (PRO) / 🖥	Roos, Chlond

Legend: 🖥 Online, ⚙ Blended (On-Site/Online), 🔊 On-Site, ✗ Cancelled

Competence Certificate
team exercise with intermediate and final presentation, presentation (including 4 plan documents) each 10 min.

Prerequisites
none

Recommendation
none

Annotation

T 6.35 Course: Statics of Rigid Bodies [T-BGU-103377]

Responsible:	Prof. Dr.-Ing. Peter Betsch
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-101745 - Statics of Rigid Bodies

Type	Credits	Recurrence	Version
Written examination	7	Each term	1

Events						
WS 20/21	6200101	Statik starrer Körper	4 SWS	Lecture (V) / 📱	Seelig	
WS 20/21	6200102	Übungen zu Statik starrer Körper	2 SWS	Practice (Ü) / 📱	Mitarbeiter/innen	
WS 20/21	6200103	Tutorien zu Statik starrer Körper	SWS	Tutorial (Tu) / 👊	Mitarbeiter/innen	

Legend: 📱 Online, 🔀 Blended (On-Site/Online), 👊 On-Site, ✗ Cancelled

Competence Certificate
written exam, 100 min.
part of the Orientation Examination according to § 8 Par. 1, to be taken until the end of the examination period of the 2nd semester

Prerequisites
none

Recommendation
none

Annotation

T 6.36 Course: Strength of Materials [T-BGU-103378]

Responsible:	Prof. Dr.-Ing. Thomas Seelig
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-101746 - Strength of Materials

Type Written examination	**Credits** 9	**Recurrence** Each term	**Version** 1

Events					
SS 2021	6200201	Strength of Materials	4 SWS	Lecture (V) / 🖥	Seelig
SS 2021	6200202	Exercises to Strength of Materials	2 SWS	Practice (Ü) / 🖥	Mitarbeiter/innen
SS 2021	6200203	Tutorien Technische Mechanik	SWS	Tutorial (Tu) / 🖥	Mitarbeiter/innen

Legend: 🖥 Online, ⚃ Blended (On-Site/Online), 🎤 On-Site, ✘ Cancelled

Competence Certificate
written exam, 100 min.

Prerequisites
none

Recommendation
none

Annotation

T 6.37 Course: Structural Analysis I [T-BGU-103387]

Responsible: Prof. Dr.-Ing. Werner Wagner
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: M-BGU-101752 - Structural Analysis

Type	Credits	Recurrence	Version
Written examination	5	Each term	1

Events					
SS 2021	6200401	Structural Analysis I	2 SWS	Lecture (V) / 🖥	Wagner
SS 2021	6200402	Exercises to Structural Analysis I	2 SWS	Practice (Ü) / 🖥	Geiger
SS 2021	6200403	Tutorien zu Baustatik I	2 SWS	Tutorial (Tu) / 🖥	Geiger

Legend: 🖥 Online, ⚄ Blended (On-Site/Online), 🔊 On-Site, ✗ Cancelled

Competence Certificate
written exam, 120 min.

Prerequisites
none

Recommendation
none

Annotation

T   6.38 Course: Structural Analysis II [T-BGU-103388]

Responsible:	Prof. Dr.-Ing. Werner Wagner
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-101752 - Structural Analysis

Type Written examination	**Credits** 5	**Recurrence** Each term	**Version** 1

Events					
WS 20/21	6200501	Structural Analysis II	2 SWS	Lecture (V) / 📱	Wagner
WS 20/21	6200502	Exercises to Structural Analysis II	2 SWS	Practice (Ü) / 📱	Panther
WS 20/21	6200503	Tutorien zu Baustatik II	2 SWS	Tutorial (Tu) / 👆	Panther

Legend: 📱 Online, 🔀 Blended (On-Site/Online), 👆 On-Site, ✗ Cancelled

Competence Certificate
written exam, 120 min.

Prerequisites
none

**Recommendation**
none

Annotation

T   6.39 Course: Structural Design [T-BGU-103386]

Responsible: Prof. Dr.-Ing. Hans Joachim Blaß
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: M-BGU-101751 - Structural Design

Type	Credits	Recurrence	Version
Written examination	6	Each term	1

Events					
WS 20/21	6200310	Structural Design	2 SWS	Lecture (V) / 🖳	Blaß, Steilner
WS 20/21	6200311	Exercises to Structural Design	2 SWS	Practice (Ü) / 🖳	Mitarbeiter/innen, Steilner
WS 20/21	6200312	Tutorials to Structural Design	2 SWS	Tutorial (Tu) / 🖳	Blaß, Steilner

Legend: 🖳 Online, ⬡ Blended (On-Site/Online), 🎤 On-Site, ✗ Cancelled

Competence Certificate
written exam, 90 min.

Prerequisites
none

Recommendation
none

Annotation

T 6.40 Course: Surveying for Civil Engineers and Geophysicists (ungraded) [T-BGU-101683]

Responsible:	Dr.-Ing. Norbert Rösch
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-103694 - Basics in Engineering II
	M-BGU-103857 - Further Examinations

Type	Credits	Recurrence	Version
Completed coursework	2	Each summer term	2

Competence Certificate
supervision of a surveying exercise

Prerequisites
none

Recommendation
none

Annotation

T   6.41 Course: Technical Illustrations [T-BGU-103402]

Responsible: Prof. Dr.-Ing. Ralf Roos
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: M-BGU-103694 - Basics in Engineering II
M-BGU-103857 - Further Examinations

Type Completed coursework	**Credits** 2	**Recurrence** Each winter term	**Version** 1

Events					
WS 20/21	6200116	Technisches Darstellen	2 SWS	Lecture (V) / ✗	Roos

Legend: ▯ Online, ⚬ Blended (On-Site/Online), ● On-Site, ✗ Cancelled

Competence Certificate
3 exercises, 1 team exercise with presentation (10 min.)

Prerequisites
none

Recommendation
none

Annotation

T 6.42 Course: Technology and Management in Construction [T-BGU-103392]

Responsible:	Prof. Dr.-Ing. Shervin Haghsheno
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-101754 - Technology and Management in Construction

| **Type** Written examination	**Credits** 11	**Recurrence** Each term	**Version** 1

Events					
SS 2021	6200410	Construction Technology	3 SWS	Lecture (V) / 🖥	Gentes, Haghsheno, Schneider
SS 2021	6200411	Exercises to Construction Technology	1 SWS	Practice (Ü) / 🖥	Gentes, Haghsheno, Schneider, Waleczko
SS 2021	6200412	Baubetriebswirtschaft	2 SWS	Lecture (V) / 🖥	Lennerts, Schmidt-Bäumler
SS 2021	6200413	Übungen zu Baubetriebswirtschaft	1 SWS	Practice (Ü) / 🖥	Lennerts, Schmidt-Bäumler
SS 2021	6200414	Facility and Real Estate Management	1 SWS	Lecture (V) / 🖥	Lennerts, Schmidt-Bäumler

Legend: 🖥 Online, ⚄ Blended (On-Site/Online), 🔊 On-Site, ✗ Cancelled

Competence Certificate
written exam, 150 min.

Prerequisites
none

**Recommendation**
none

Annotation

T 6.43 Course: Term Papers Highway Engineering [T-BGU-106833]

Responsible: Prof. Dr.-Ing. Ralf Roos
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: M-BGU-103486 - Mobility and Infrastructure

Type Completed coursework	Credits 0	Recurrence Each summer term	Version 1

Events					
SS 2021	6200408	Design Basics in Highway Engineering	2 SWS	Lecture (V) / ▯	Roos, Zimmermann
SS 2021	6200409	Exercises to Design Basics in Highway Engineering	SWS	Practice (Ü) / ▯	Plachkova-Dzhurova, Zimmermann

Legend: ▯ Online, ✿ Blended (On-Site/Online), ● On-Site, ✗ Cancelled

Competence Certificate
4 term papers, each paper 5-8 pages incl. planning documents

Prerequisites
none

Recommendation
none

Annotation

T 6.44 Course: Term Papers Transportation [T-BGU-106832]

Responsible:	Prof. Dr.-Ing. Peter Vortisch
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-103486 - Mobility and Infrastructure

Type Completed coursework	Credits 0	Recurrence Each summer term	Version 1

Events					
SS 2021	6200406	Transportation Systems	2 SWS	Lecture (V) / 🖥	Vortisch
SS 2021	6200407	Exercises to Transportation Systems	SWS	Practice (Ü) / 🖥	Vortisch, Mitarbeiter/innen

Legend: 🖥 Online, ⚄ Blended (On-Site/Online), 🔊 On-Site, ✗ Cancelled

Competence Certificate
3 term papers, each paper 5-8 pages

Prerequisites
none

Recommendation
none

Annotation

T 6.45 Course: Theory of Building Materials [T-BGU-103382]

Responsible:	Prof. Dr.-Ing. Frank Dehn
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-101750 - Building Materials

Type	Credits	Recurrence	Version
Written examination	3	Each term	1

Events					
SS 2021	6200206	Theory of Building Materials	1 SWS	Lecture (V) / 🖥	Dehn
SS 2021	6200207	Exercises to Theory of Building Materials	1 SWS	Practice (Ü) / 🖥	Assistenten

Legend: 🖥 Online, ⚄ Blended (On-Site/Online), 🔊 On-Site, ✗ Cancelled

Competence Certificate
written exam, 60 min.

part of the Orientation Examination according to § 8 Par. 1, to be taken until the end of the examination period of the 2nd semester

Prerequisites
none

Recommendation
none

Annotation

| T | **6.46 Course: Trades and Technology in Turnkey Construction [T-BGU-110821]** |

Responsible: Prof. Dr.-Ing. Shervin Haghsheno
Organisation: KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of: M-BGU-103695 - Supplements in Engineering
M-BGU-103857 - Further Examinations

Type Completed coursework	Credits 2	Recurrence Each term	Expansion 1 terms	Version 1

Events					
WS 20/21	6200521	Gewerke und Technik im schlüsselfertigen Hochbau	2 SWS	Lecture (V) / 🖥	Denzer, Schneider

Legend: 🖥 Online, ⚙ Blended (On-Site/Online), 🔊 On-Site, ✗ Cancelled

Competence Certificate
written test, 45 min.

Prerequisites
none

Recommendation
none

Annotation

T 6.47 Course: Water and Environment [T-BGU-106800]

Responsible:	PD Dr.-Ing. Stephan Fuchs
	Prof. Dr. Franz Nestmann
	Prof. Dr.-Ing. Erwin Zehe
Organisation:	KIT Department of Civil Engineering, Geo- and Environmental Sciences
Part of:	M-BGU-103405 - Water and Environment

Type Written examination	**Credits** 12	**Recurrence** Each term	**Version** 1

Events					
WS 20/21	6200511	Wasserbau und Wasserwirtschaft	2 SWS	Lecture (V) / 🖥	Nestmann
WS 20/21	6200512	Übungen zu Wasserbau und Wasserwirtschaft	1 SWS	Practice (Ü) / 🖥	Seidel
WS 20/21	6200513	Hydrology	2 SWS	Lecture (V) / 🖥	Zehe, Wienhöfer
WS 20/21	6200514	Übungen zu Hydrologie	1 SWS	Practice (Ü) / 🖥	Zehe, Wienhöfer
SS 2021	6200603	Water Supply and Sanitation	3 SWS	Lecture / Practice (VÜ) / 🖥	Fuchs

Legend: 🖥 Online, 🔀 Blended (On-Site/Online), 🔊 On-Site, ✗ Cancelled

Competence Certificate
written exam, 180 min.

Prerequisites
The module examinations in den subjects Mechanics and Mathematics as well as the module examination Structural Design has to be passed all except two.

Modeled Conditions
You have to fulfill 7 of 9 conditions:

1. The module M-BGU-101745 - Statics of Rigid Bodies must have been passed.
2. The module M-BGU-101746 - Strength of Materials must have been passed.
3. The module M-BGU-101747 - Dynamics must have been passed.
4. The module M-BGU-101748 - Hydromechanics must have been passed.
5. The module M-MATH-101716 - Analysis and Linear Algebra must have been passed.
6. The module M-MATH-101714 - Integration and Multivariate Analysis must have been passed.
7. The module M-BGU-101749 - Applied Statistics must have been passed.
8. The module M-MATH-101712 - Differential Equations must have been passed.
9. The module M-BGU-101751 - Structural Design must have been passed.

Recommendation
none

Annotation

T 6.48 Course: Wildcard [T-BGU-107788]

Organisation: University
Part of: M-BGU-103854 - Interdisciplinary Qualifications

Type	**Credits**	**Version**
Completed coursework	1	1

Appendix: Curriculum by example

Subject	Module	Course	Type	1. sem HpW	1. sem LC	1. sem CP	2. sem HpW	2. sem LC	2. sem CP	3. sem HpW	3. sem LC	3. sem CP	4. sem HpW	4. sem LC	4. sem CP	5. sem HpW	5. sem LC	5. sem CP	6. sem HpW	6. sem LC	6. sem CP
Mechanics	Statics of Rigid Bodies	Statics of Rigid Bodies	L/E	3/2	wE OE	7															
	Strength of Materials	Strength of Materials	L/E				4/2	wE	9												
	Dynamics	Dynamics	L/E							2/2	nA[1] wE	6									
	Hydromechanics	Hydromechanics	L/E							2/2	nA[1] wE	6									
Mathematics	Analysis and Lineare Algebra	Analysis and Lineare Algebra	L/E	4/2	wE	9															
	Integration and Multivariate Analysis	Integration and Multivariate Analysis	L/E				4/2	wE	9												
	Applied Statistics	Applied Statistics	L/E				2	wE	3												
	Differential Equations	Differential Equations	L/E							2/1	wE	4									
Building Materials and Structural Design	Building Materials	Theory of Building Materials	L/E				1/1	wE OE	3												
		Building Materials	L/E							4/2	wE	9									
	Structural Design	Building Physics	L/E				1/1	wE OE	3												
		Stuctural Design	L/E							2/2	wE	6									
Basics in Engineering	Basics in Engineering I	Project Management	L/E	2	nA	2															
		Geology in Civil Engineering	L/E				2	nA	2												
		Introduction to Computer Programming I	L/E	1/1	nA[1] nA	2															
	Basics in Engineering II	Laboratory Course	P	2	nA	2															
		Technical Illustrations	L/E	2	nA	2															
Interdisciplinary Qualifications	Interdisciplinary Qualifications	selection from the offer of HoC and ZAK	L/E	2	nA	3	2	nA	3												
Structural Analysis	Structural Analysis	Structural Analysis I	L/E										2/2	wE	5						
		Structural Analysis II	L/E													2/2	wE	5			
Structural Engineering	Basics of Reinforced Concrete	Basics of Reinforced Concrete I	L/E													2/1	wE	4			
		Basics of Reinforced Concrete II	L/E																2	wE	2
	Basics in Steel and Timber Structures	Basics in Steel Structures	L/E													2/1	wE	4			
		Basics in Timber Structures	L/E													2/1	wE	4			
Water and Environment	Water and Environment	Hydraulic Engineering and Water	L/E										2/1	nA[1]							
		Hydrology	L/E										2/1	nA[1]							
		Sanitary Environmental Engineering	L/E										2/1	wE	12						
Mobility and Infrastructure	Mobility and Infrastructure	Spatial Planing and Planing Law	L/E										2/1								
		Transportation	L/E										3/1	wE							
		Design Basics in Highway Engineering	L/E										1	wE	11						
Technology and Management in Construction	Technology and Management in Construction	Construction Technology	L/E										2/2	wE	3						
		Economics in Construction Operation	L/E													2/1	wE	4			
		Facility and Real Estate Management	L																		
Geotechnical Engineering	Geotechnical Engineering	Basics in Soil Mechanics	L/E													2/2	wE	8			
		Basics in Foundation Engineering	L																2/1	wE	8
Supplements in Engineering	Supplements in Engineering	Physical Modelling in Hydraulic Engineering	L																2	nA	2
		Project 'Plan, Design, Engineering'	Pj																2	nA	2
		Life Cycle Management	L/E																2	nA	2
		Computer Aided Design (CAD)	L/E													2	nA	2			
Bachelor Thesis		Bachelor Thesis																	12
Summe				21	2E+6nA	27	22	5E+2nA	32	21	5E+2nA	31	25	3E+2nA	31	25	5E+1nA	31	11	2E+3nA	28

The curriculum by example is not at all any recommendation with respect to the selected learning controls in the modules 'Basics in Engineering II' and 'Supplements in Engineering' !