

Bachelor of Arts in Architecture  
**Module Manual**

Study started  
WS 2018/2019

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## Contents

<b>Module Description</b>	<b>Module Code</b>	<b>Semester</b>	<b>Page</b>
Project 1B	PRO 1B	1	3
Design and Digital Planning 1	GDP1	1	4
Structural Design 1	BK1	1	5
Integral Planning 1	IP1	1	6
Urban Development 1	SB1	1	8
Project 2B	PRO 2B	2	9
Design and Digital Planning 2	GDP2	2	10
Structural Design 2	BK2	2	11
Integral Planning 2	IP2	2	12
History of Architecture	AG	2	14
Project 3B	PRO 3B	3	15
Competences 1	KOM1	3	17
Structural Design 3	BK3	3	18
Integral Planning 3 / Building Technology	IP3	3	19
History of Architecture and Preservation of Monuments	AGD	3	20
Project 4B	PRO 4B	4	21
Competences 2	KOM2	4	22
Elective Module	WM	4-6	23
Integral Planning 4 / Building Technology	IP4	4	30
Urban Development 2	SB2	4	31
Project 5B	PRO 5B	5	32
Competences 3	KOM3	5	33
Management 1	MAG1	5	34
Pro Basic	PB	6	36
Project 6B (Final Project)	PRO 6B	6	37
Management 2	MAG2	6	38

## Module Description: Project 1B

1st Semester

Module Code: PRO 1B		ECTS Credits: 9	
Teaching and learning methods:		Attendance time:	90 full hours
Lecture:	1 SWS [semester period(s) per week]	Preparation and follow-up:	45 full hours
Exercise / internship / seminar:	5 SWS	Term papers / presentations, etc.:	135 full hours
		Total workload:	approx. 270 full hours
Module Coordinator: Prof. Dr. Carolin Stapenhorst		Prerequisite for participation: -	

### Desired learning results:

#### Specialist competences

##### Project 1B

Introduction to design as a core competence of architects; development of the ability to grasp, interpret and solve small architectural tasks.

##### Project Plus

Recognising the correlation between design objectives and of additional in-depth specialist knowledge.

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, practical application, ability to reflect, complex problem-solving, self-directed learning, learning and thinking strategies, project management, media competence

##### Social skills

Communication techniques, linguistic skills

##### Personal skills

Stress management, motivation to learn, examination preparation, ability to engage in self-criticism

#### Learning content

##### Project 1B

- body: the outer shape of the single room as an architectural task; basic shapes, dimension, proportion, transformation, composition; body and light; interior and exterior
- function, form and order: differentiation of room functions, hierarchy and sequence, development elements, function-dependent room dimensions and qualities

##### Project Plus

- ability to methodically work out a design by means of simple representation techniques (sketch, working model, 2D and 3D drawing)

#### Type of examination

Project submission

#### Literature and learning materials

##### Project 1B

Ching, Francis – Architecture - Form, Space and Order, Wiley & Sons, Hoboken 2010

Fonatti, Franco – Elementare Gestaltungsprinzipien in der Architektur, Ed. Tusch, Wien 1992 Jocher, Thomas – Raumpilot Grundlagen, Stuttgart, Krämer 2010

##### Project Plus

Topic-oriented according to reference list of the assignment

## Module Description: Design and Digital Planning 1

1st Semester

Module Code: GDP1		ECTS Credits: 6	
Teaching and learning methods:		Attendance time: 60 full hours	
Lecture:	1 SWS	Preparation and follow-up:	30 full hours
Exercise / internship / seminar:	3 SWS	Term papers / presentations, etc.:	90 full hours
		Total workload:	approx. 180 full hours
Module Coordinators: Prof. Dipl.-Ing. Thomas Tünnemann Dr. Daniela Thiels		Prerequisite for participation: -	

### Desired learning results:

#### Specialist competences

##### Design 1

Ability to outline simple ideas of architecture with simple graphical means. Sorting graphical topics and representations and relating them to an independent architectural object. Developing individual layout variants in a conclusive graphic and creating them so that they are ready for presentation.

##### CAAD 1

Basic skills in dealing with digital architectural design by means of special architecture software, specifically with a common program for the preparation and presentation of architectural plans. The used program shall be understood in its structure and used independently in various fields of use. The range of perception of digital design shall be heightened in digital architecture, and first transfer knowledge applications are promoted.

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, ability to reflect, complex problem-solving, self-directed learning, learning and thinking strategies, project management

##### Social skills

Teamwork, communication techniques, linguistic skills, conflict management

##### Personal skills

Stress management, motivation to learn, ability to engage in self-criticism

#### Learning content

##### Design 1

Everyday situations are brought to mind in various analyses, mostly based on drawings, and reconsidered and visualised in sequential graphical exercises. The connection between graphic techniques and architectural contents are identified and discussed on the basis of an individual concept.

##### CAAD 1

Teaching of the structure and the handling of digital architectural representations and design with exemplary sections from the two-dimensional construction area. Appealing design of plans and first experience with image processing. Various current 2D design and construction software, online exercises, videos and self-tests result in self-determined learning success in the implementation and application of architectural designs.

#### Type of examination

##### Design 1

Project submission during the semester

##### CAAD 1

Project submission during the semester with presentation and written examination

#### Literature and learning materials

##### Design 1

Arbeitsblätter zur Darstellenden Geometrie für Architekten, Dr. Claus Pütz – Shaker, 2007 Handbuch der Architekturzeichnung, Frank Ching - Hatje Cantz, 1999

##### CAAD 1

Lecture notes, textbooks (Prof. Sondermann), interactive learning software, videos on CD and online, CAAD program manuals, exercise sheets, additional information geared towards the relevant semester program

## Module Description: Structural Design 1

1st Semester

Module Code: BK1		ECTS Credits: 5	
Teaching and learning methods:			
Lecture:	2 SWS	Attendance time:	60 full hours
Exercise / internship / seminar:	2 SWS	Preparation and follow-up:	30 full hours
		Term papers / presentations, etc.:	60 full hours
		Total workload:	approx. 150 full hours
Module Coordinator(s): name hitherto unknown		Prerequisite for participation: -	

### Desired learning results:

#### Specialist competences

- identification, designation and analysis of different basic constructions as well as elementary components and construction modules including their dimensional joining principles.
- application of simple structural design knowledge such as sealing, separating, joining and bracing
- identification and designation of basic construction materials, particularly of solid construction

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, ability to reflect, research skills

##### Social skills

Teamwork

##### Personal skills

Examination preparation, ability to engage in self-criticism

#### Learning content

Site determination of current architecture and construction trends. The origin of stave construction and solid construction are derived from construction history and correlated with their spatial effects, the constructive consequences of the choice of structure are demonstrated.

Elementary components such as foundation, bottom, ceiling, roof, door, window, stairs are analysed with regard to their function, concept and construction requirements.

#### Type of examination

Written examination with exercises as prerequisite

#### Literature and learning materials

Architektur konstruieren: vom Rohmaterial zum Bauwerk, Deplazes - Birkhäuser, 2008 Konstruieren im Raum, Hauschild, 2003  
Baustoff-Atlas, Hegger, Fuchs, Rosenkranz, 2005

## Module Description: Integral Planning 1

1st Semester

Module Code: IP1		ECTS Credits: 6	
Teaching and learning methods:		Attendance time: 105 full hours	
Lecture:	4 SWS	Preparation and follow-up:	45 full hours
Exercise / internship / seminar:	3 SWS	Term papers / presentations, etc.:	30 full hours
		Total workload:	approx. 180 full hours
Module Coordinator: Prof. Dr.-Ing. Evelin Rottke/ name hitherto unknown		Prerequisite for participation: -	

### Desired learning results:

#### Specialist competences

##### Load-bearing structure 1

Load-bearing structure analysis (independent analysis of erected load-bearing structures):

identifying and naming load-bearing elements, representing load transfer up to foundation level - drawing location plans, identifying and representing static systems, distinguishing between longitudinal force and bending, calculating or graphically determining bearing reactions and stress resultants, estimating load-bearing elements, identifying and representing building reinforcement, constructing a load-bearing structure model. Communication via load-bearing structures.

##### Building Physics 1

Knowledge about thermal, moisture and sound protection shall be gained. The abstraction of isolated phenomena as well as more complex connections and the application in practical solutions (structural designs) shall be learned. A coherent understanding of the construction planning requirements shall be gained as a result.

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, ability to reflect, complex problem-solving, self-directed learning, learning and thinking strategies, media competence, information literacy, research skills

##### Social skills

Teamwork, group development, role flexibility, communication techniques, linguistic skills

##### Personal skills

Motivation to learn, examination preparation, ability to engage in self-criticism

#### Learning content

##### Load-Bearing Structure 1

- systematic analysis of a load-bearing element: designation, static system, bearing reactions, stress resultants, dimensioning
- two-dimensional static systems: bending girder – including with cantilever arms and continuous beams – hanging constructions, arches, frames
- profile view: haunched girders, lattice girders
- graphical statics for analysing sloping rods, cables, arcs and frames, funicular lines, pressure lines
- preparation of location plans
- load-bearing structure-relevant aspects of construction materials, especially steel and timber
- estimates for dimensioning all load-bearing structures
- bracing elements and overall bracing
- notes on building load-bearing structure models
- examples for analysing executed supporting structures

##### Building Physics 1

- architecture-related basics of thermal, moisture and sound protection, procedure for analysing and assessing component qualities (e.g. Glaser diagram, thermal bridges), procedures in the fields of sound protection and room acoustics
- implementing the knowledge in structural designs
- building physics aspects of materials

#### Type of examination

##### Load-Bearing Structure 1

Presentation Colloquium, exercises as prerequisite

##### Building Physics 1

Written examination

## **Literature and learning materials**

### Load-Bearing Structure 1

e-Learning (Rottke): Learning module and lecture notes on the learning platform ILIAS – FH Aachen

Lecture notes (Rottke) on eLectures – FH Aachen

Tragwerkslehre, Staffa, Michael. Beuth 2014

Grundlagen der Tragwerkslehre 1+2. Krauss, Führer, Neukäter, Willems, Techen, Rudolf Müller 2014

Tabellen zur Tragwerkslehre, Krauss, Führer, Jürges. Rudolf Müller, 2016

### Building Physics 1

Current list of the assignment

## Module Description: Urban Development 1

1st Semester

Module Code: SB1		ECTS Credits: 4	
Teaching and learning methods:		Attendance time:	45 full hours
Lecture:	2 SWS	Preparation and follow-up:	30 full hours
Exercise / internship / seminar:	1 SWS	Term papers / presentations, etc.:	45 full hours
		Total workload:	approx. 120 full hours
Module Coordinator: Prof. Dipl.-Ing. Stefan Werrer		Prerequisite for participation: -	

### Desired learning results:

#### Specialist competences

- understanding the basic functionalities of urban systems and the resulting tasks for urban development and planning
- identification, analysis and assessment of urban situations
- understanding for a methodical approach for urban designing
- urban design skills in a given situation with simple complexity
- learning types of representation in urban design

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, ability to reflect, complex problem-solving, self-directed learning, learning and thinking strategies

##### Social skills

Teamwork, group development, role flexibility, communication techniques, linguistic skills

##### Personal skills

Motivation to learn, ability to engage in self-criticism

#### Learning content

Using the example of historical periods and types of cities as well as current national and international projects, urban qualities and elements are identified and the most important urban components are explained in the lecture. The goal is to open one's eyes for the "city phenomenon", to provide an overview of the knowledge and professional field of "urban development / urban planning" and to clarify relations and/or differences between urban and architectural designs.

- practice-oriented introduction to design on an urban development scale
- introduction to urban terms, key figures and guide values as well as urban components and systems as the basics of urban design
- exercises in the covered topics
- site visits related to the exercises

#### Type of examination

Project submission

#### Literature and learning materials

Albers, Gerd: Zur Entwicklung der Stadtplanung in Europa: Begegnungen, Einflüsse, Verflechtungen. Braunschweig. Vieweg 1997 Bürklin Thorsten., Peterek Michael.: Basics Stadtbausteine. Berlin Birkhäuser 2010

Curdes, Gerhard: Stadtstruktur und Stadtgestaltung. Stuttgart. Kohlhammer 1993 Netsch, Stefan: Handbuch und Entwurfshilfe Stadtplanung. Berlin. DOM Publishers 2015 Prinz, Dieter: Städtebau. Bd.1. Städtebauliches Entwerfen. Stuttgart. Kohlhammer 1999. Bd.2. Städtebauliches Gestalten. Stuttgart. Kohlhammer 1997

Bachelor of Arts in Architecture | Module Manual for the Study Programme starting in WS 18/19  
FH Aachen | Faculty of Architecture | Last update: WS 21/22 Page 10 of 52

Reicher, Christa: Städtebauliches Entwerfen. Wiesbaden. Springer Vieweg 2013

Städtebau-Institut Universität Stuttgart: Lehrbausteine Städtebau. Basiswissen für Entwurf und Planung. Stuttgart 2010 Schenk,

Leonhard: Stadt Entwerfen. Grundlagen – Prinzipien – Projekte. Basel. Birkhäuser Verlag 2013

Schwalbach, Gerritt: Basics Stadtanalyse. Berlin. Birkhäuser 2009



## Module Description: Project 2B

2nd Semester

Module Code: PRO 2B		ECTS Credits: 9	
Teaching and learning methods:		Attendance time: 90 full hours	
Lecture:	1 SWS	Preparation and follow-up:	45 full hours
Exercise / internship / seminar:	5 SWS	Term papers / presentations, etc.:	135 full hours
		Total workload:	approx. 270 full hours
Module Coordinator: Prof. Dr. Carolin Stapenhorst		Prerequisite for participation: -	

### Desired learning results:

#### Specialist competences

##### Project 2B

- methodically working out the basics of designing as a core competence of architects
- developing the ability to grasp, interpret and, in terms of organisation and composition, solve small, more complex architectural tasks.

##### Project Plus

- recognising the correlation between design objectives and additional in-depth specialist knowledge

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, scientific writing, practical application, ability to reflect, complex problem-solving, self-directed learning, learning and thinking strategies, project management, media competence, information literacy, research skills

##### Social skills

Teamwork, group development, role flexibility, communication techniques, linguistic skills, conflict management

##### Personal skills

Stress management, motivation to learn, examination preparation, ability to engage in self-criticism

#### Learning content

##### Project 2B

- location, shape and composition: first attempt of an architectural design
- local design determinants, topography, climate, vegetation, historical and cultural setting, landscape, settlement and urban structure
- integrative or provocative analysis of the local conditions
- boundary, threshold or fluent transition between place and building transformation of character, effect and orientation of the place through architecture

##### Project Plus

Introduction to integrated planning by integrating specialist knowledge and skills, e.g. in the field of architectural representation and representation techniques.

#### Type of examination

Project submission

#### Literature and learning materials

##### Project 2B

Jocher, Thomas – Raumpilot Grundlagen, Stuttgart, Krämer 2010  
Ispording, Stephan – Häuser am Hang, München, Callwey 2000  
Hildner, Claudia – Kleine Häuser-Zeitgenössische jap. Wohnbauten, Basel, Birkhäuser 2011

##### Project Plus

Topic-oriented according to reference list of the assignment

## Module Description: Design and Digital Planning 2

2nd Semester

Module Code: GDP2		ECTS Credits: 6	
Teaching and learning methods:		Attendance time: 60 full hours	
Lecture:	1 SWS	Preparation and follow-up:	45 full hours
Exercise / internship / seminar:	3 SWS	Term papers / presentations, etc.: Total workload:	75 full hours approx. 180 full hours
Module Coordinators: Prof. Dipl.-Ing. Thomas Tünnemann / Dr. Daniela Thiels		Prerequisite for participation: -	

### Desired learning results:

#### Specialist competences

##### Design 2

ability to contrast and discuss design statements and their link to design topics and architecture

ability to test own graphic expressions in various techniques and apply them to the student's own project

##### CAAD 2

Further development in dealing with special architecture software, specifically with various programs for design and representation of virtual three-dimensional buildings. The used programs shall serve to increase three-dimensional perception and are independently applied in various fields. Expansion of the perception training into three-dimensional areas. Basics of three-dimensional digital architectural visualisation.

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, scientific writing, ability to reflect, complex problem-solving, self-directed learning, learning and thinking strategies, project management, media competence, information literacy, research skills

##### Social skills

Teamwork, communication techniques, linguistic skills, conflict management

##### Personal skills

Stress management, motivation to learn, ability to engage in self-criticism

#### Learning content

##### Design 2

The connections between process, model, layout and architecture are discussed and varied by smaller, oftentimes performative works in the most varied representation methods. Strategies for form-finding and design in architectural projects are visualised and analysed in small exercises. An architectural object generated from these exercises is illustrated and presented with an independent graphic concept.

##### CAAD 2

Various current 2D/3D design and construction software, online exercises, videos and self-tests result in self-determined learning success in the implementation and application of architectural designs.

#### Type of examination

##### Design 2

Project submission during the semester

##### CAAD 2

Project submission during the semester with presentation and written examination

#### Literature and learning materials

##### Design 2

Arbeitsblätter zur Darstellenden Geometrie für Architekten, Dr. Claus Pütz – Shaker, 2007 Handbuch der Architekturzeichnung, Frank Ching - Hatje Cantz, 1999

##### CAAD 2

Lecture notes, textbooks (Prof. Sondermann), interactive learning software, videos on CD and online, CAAD program manuals, exercise sheets, additional information geared towards the relevant semester programme

## Module Description: Structural Design 2

2nd Semester

Module Code: BK2		ECTS Credits: 5	
Teaching and learning methods:		Attendance time: 60 full hours	
Lecture:	2 SWS	Preparation and follow-up:	42 full hours
Exercise / internship / seminar:	2 SWS	Term papers / presentations, etc.:	48 full hours
		Total workload:	approx. 150 full hours
Module Coordinator: Prof. Dipl.-Ing. Jörg Wollenweber		Prerequisite for participation: -	

### Desired learning results:

#### Specialist competences

The students acquire basic knowledge in the field of timber constructions. They shall be enabled to identify and name various timber constructions as well as their features and capabilities. Raising awareness for the handling of timber constructions in new buildings and building redevelopments. First applications in the field of timber constructions should be possible.

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, practical application, ability to reflect, complex problem-solving, self-directed learning, learning and thinking strategies, media competence, information literacy, research skills

##### Social skills

Teamwork, group development, linguistic skills

##### Personal skills

Stress management, motivation to learn, examination preparation, ability to engage in self-criticism

#### Learning content

The raw material extraction as well as the characteristics of timber and timber materials, the different types of timber constructions and their constructive features are shown in a lecture series. The "entire" load-bearing systems as well as the individual detailed areas such as foundation, wall structures, ceiling structures and roof systems are discussed. This is presented and discussed in detail by means of built examples and current research in the field of timber construction.

In parallel with the lecture series, the gained knowledge is applied to a semester assignment which is in a not very complex context. This is a first application of timber constructions in planning, with focus on structural and design aspects of a timber construction.

#### Type of examination

Project submission

#### Literature and learning materials

Detail Holzbauatlas, 2003 - Natterer, Winter, Herzog, Schweitzer, Volz Detail Baustoffatlas, 2005 or newer - Hegger, Auch-Schwelk u.a. Holzlexikon

## Module Description: Integral Planning 2

2nd Semester

Module Code: IP2		ECTS Credits: 6	
Teaching and learning methods:		Attendance time: 105 full hours	
Lecture:	4 SWS	Preparation and follow-up:	45 full hours
Exercise / internship / seminar:	3 SWS	Term papers / presentations, etc.:	30 full hours
		Total workload:	approx. 180 full hours
Module Coordinator: Prof. Dr.-Ing. Evelin Rottke/ name hitherto unknown		Prerequisite for participation: -	

### Desired learning results:

#### Specialist competences

##### Load-Bearing Structure 2

Load-bearing structure design (own design of a wide-spanning supporting structure in steel or timber in a free context, e.g. hall):

- developing design alternatives for the layout, grid, load-bearing system, profile view and the construction details of a load-bearing structure design
- assessing alternatives: describing benefits and disadvantages, presenting structural behaviour, estimating dimensions and drawing the alternative load-bearing structure's appearance
- elaborating and presenting the chosen alternative
- designing solid constructions: understanding structural behaviour and estimating dimensions, developing and assessing alternatives for the direction of span

##### Building Physics 2

Knowledge about thermal, moisture and sound protection shall be gained. The abstraction of isolated phenomena as well as more complex connections and the application in practical solutions (structural designs) shall be learned. A coherent understanding of the construction planning requirements shall be gained as a result.

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, ability to reflect, complex problem-solving, self-directed learning, learning and thinking strategies, media competence, information literacy, research skills

##### Social skills

Teamwork, group development, role flexibility, communication techniques, linguistic skills

##### Personal skills

Motivation to learn, examination preparation, ability to engage in self-criticism

#### Learning content

##### Load-Bearing Structure 2

- addition to basics: structural behaviour, static systems and estimated dimensioning of load-bearing elements in solid construction. load-bearing structure-relevant aspects of reinforced concrete.
- designing load-bearing structures (building on the knowledge gained in the 1st semester):
- planning grid alternatives,
- profile view alternatives: haunched girders, lattice girders, trussed girders,
- static systems alternatives (bending girder, cable, arch, frame): benefits and disadvantages, structural behaviour, estimated dimensioning, measures to achieve more favourable structural behaviour, various profile views, stabilisation measures
- meaning of the constructional execution (load-bearing structure details) for the design
- meaning of the bracing for the design

##### Building Physics 2

- architecture-related basics of thermal, moisture and sound protection
- procedure for analysing and assessing component qualities (e.g. Glaser diagram, thermal bridges)
- procedure in the fields of sound protection and room acoustics; implementing the knowledge in structural designs
- building physics aspects of materials

#### Type of examination

##### Load-Bearing Structure 2

Presentation Colloquium

Building Physics 2  
Written examination

**Literature and learning materials**

Load-Bearing Structure 2

e-Learning (Rottke): Learning module and lecture notes on the learning platform ILIAS – FH Aachen

Lecture notes (Rottke) on eLectures – FH Aachen

Tragwerkslehre, Staffa, Michael. Beuth 2014

Grundlagen der Tragwerkslehre 1+2. Krauss, Führer, Neukäter, Willems, Techen, Rudolf Müller 2014 Tabellen zur Tragwerkslehre, Krauss, Führer, Jürges. Rudolf Müller, 2016

Building Physics 2  
Current list of the assignment

## Module Description: History of Architecture

2<sup>nd</sup> Semester

Module Code: AG		ECTS Credits: 4	
Teaching and learning methods:		Attendance time:	45 full hours
Lecture:	2 SWS	Preparation and follow-up:	30 full hours
Exercise / internship / seminar:	1 SWS	Term papers / presentations, etc.:	45 full hours
		Total workload:	approx. 120 full hours
Module Coordinator: Prof. Dr.-Ing. Anke Fissabre		Prerequisite for participation: -	

### Desired learning results:

#### Specialist competences

The guided analysis of historical buildings trains the students' analytical understanding and thus their architectural judgement in general. Categories are demonstrated by means of which they learn to distinguish top-quality architecture from mere buildings. The following skills are taught in the course:

- knowing and understanding basic historical building typologies, structural shapes and construction methods from antiquity to the early modern period
- knowing and applying the related specific architectural terminology
- perceiving, recognising and identifying architectural styles, building typologies and architectural situations
- recognising universal and epoch-spanning typologies and gestures of architecture
- analysing and assessing sample designs of all architectural eras in their conceptional, typological, constructive and semantic consequence
- ability to tap into the complex of historical architecture as a fully useable wealth of inspiration for own creative work.

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, scientific writing, application in practice, ability to reflect, self-directed learning, learning and thinking strategies, project management, media competence, research skills

##### Social skills

Teamwork, group development, role flexibility, communication techniques, linguistic skills, conflict management

##### Personal skills

Stress management, time management, motivation to learn, examination preparation, ability to engage in self-criticism

#### Learning content

The course forms the first part of the two-semester lecture series entitled "History of Architecture: Building Types, Structural Shapes and Structural Designs". The chronological lecture gives an introduction to the most important eras of architectural history based on one characteristic building type per era (Greek temple, early Christian basilica, etc.). The focus is less on detailed knowledge and learning dates and more on increasing awareness for epoch-spanning high-quality architectural typologies, construction ideas and gestures to harness them for the architecture students' design practice.

#### Type of examination

Oral examination with prerequisite

#### Literature and learning materials

Lecture materials e-Learning

Binding, Günther: Architektonische Formenlehre, Darmstadt, 1999

Reinle, Adolf: Zeichensprache der Architektur, Zürich/München, 1984

Bartel, J./Naujokat, A./Schöten, B.: Historische Bautypologie und architektonische Formenlehre, Aachen 2004

## Module Description: Project 3B

3<sup>rd</sup> Semester

Module Code: PRO 3B		ECTS Credits: 13	
Teaching and learning methods:		Attendance time: 120 full hours	
Lecture:	1 SWS	Preparation and follow-up:	60 full hours
Exercise / internship / seminar:	7 SWS	Term papers / presentations, etc.: Total workload:	180 full hours
		approx. 360 full hours	
Module Coordinators: Prof. Dipl.-Ing. Ulrich Eckey		Prerequisite for participation: -	

### Desired learning results:

#### Specialist competences

##### Project 3B

Understanding the interplay between urban development and (residential) architecture as a basis of sustainable district development with high quality of housing is the most important result of this interdisciplinary project. The existing basics from urban development and building theory are enhanced and supplemented by free space planning topics. The students get to know aspects of sustainable district developments as well as contemporary assessment criteria for living quarters, which they will apply in a straightforward planning task.

In doing so, they

- further develop already acquired urban design skills in a given situation with simple complexity
- develop the ability to adapt diverging targets and specialist contents with regard to a comprehensive solution
- develop the ability to design summable house types and their open spaces including creative-constructive statement in high-density housing
- develop the ability to present their own project with layouts and models

##### Project Plus

- recognising the correlation between design objectives and additional in-depth specialist requirements

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, practical application, ability to reflect, complex problem-solving, self-directed learning, learning and thinking strategies, project management, information literacy

##### Social skills

Teamwork, group development, role flexibility, communication techniques, linguistic skills, conflict management

##### Personal skills

Stress management, motivation to learn, ability to engage in self-criticism

#### Learning content

##### Project 3B

- integrated local survey and analysis
- programme development and target-setting
- integrated development of an urban development design
- design of suitable house types
- design of suitable open spaces
- presentation of the project as a comprehensive solution

Lecture contents:

- methodology and practice of sustainable district development, free space in the residential environment, typologies of private residences with focus on high-density housing, functional areas, room concepts, body and facade, economic constructions, design representations. Field trip to selected examples.

##### Project Plus

Introduction to integrated planning by integrating specialist knowledge and skills beyond the design task of the project.

#### Type of examination

Presentation Colloquium

## **Literature and learning materials**

### Project 3B

Literature on the topic of urban development

Reicher, Christa – Städtebauliches Entwerfen, Wiesbaden, Vieweg + Teubner 2012

Städtebau-Institut Universität Stuttgart – Lehrbausteine Städtebau. Basiswissen für Entwurf und Planung. Stuttgart 2010 Schenk, Leonhard – Stadt Entwerfen. Grundlagen – Prinzipien – Projekte. Basel. Birkhäuser Verlag 2013

### *Literature on the topic of designing/drafting*

Heisel, Joachim P. – Planungsatlas, Berlin, Bauwerk 2007

Pfeifer, Günter – WOHNHäuser\_Eine Typologie, Basel, Birkhäuser 2015

Schittich, Christian (Hrsg.) – im Detail: Reihen- und Doppelhäuser, München, 2006 Eckey,

Ulrich – Dichte Wohnformen – Kleine Häuser, Aachen 2010

### Project Plus

Topic-oriented according to reference list of the assignment



## Module Description: Competences 1

3rd Semester (compulsory elective module)

Module Code: KOM1		ECTS Credits: 4	
Teaching and learning methods:		Attendance time:	45 full hours
Lecture:	- SWS	Preparation and follow-up:	30 full hours
Exercise / internship / seminar:	3 SWS	Term papers / presentations, etc.:	45 full hours
		Total workload:	approx. 120 full hours
Module Coordinator: Prof. Dr. Carolin Stapenhorst / Dr. Daniela Thiels / Structural Design TBD + Prof. Dipl.-Ing. Ulrich Eckey		Prerequisite for participation: -	

### Desired learning results:

#### Specialist competences

##### Digital Skills

- learning and enhancing architecture-related skills from the fields of digital planning and building

##### Project week

- preparatory establishment of design parameters for the independent solution of an architectural design task within a certain period of time (workload approx. 60 full hours)

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, practical application, self-directed learning, learning and thinking strategies, media competence, information literacy, research skills

##### Social skills

Communication techniques, linguistic skills, conflict management

##### Personal skills

Stress management, motivation to learn

#### Learning content

##### Digital Skills

The course varies with the following contents:

- application of digital tools
- methods and processes for designing, planning, representing, simulating, presenting, organising construction tasks

##### Project week

- methods for the preparatory establishment of the basis of the project
- research, development and presentation of the students' own results in sketches, plan and image documentation, using and learning specific terminology
- perceptiveness training (e.g. during one-day field trips)

#### Type of examination

Performance record

#### Literature and learning materials

Project-related reference library

## Module Description: Structural Design 3

3<sup>rd</sup> Semester

Module Code: BK3		ECTS Credits: 5	
Teaching and learning methods:		Attendance time: 60 full hours	
Lecture:	2 SWS	Preparation and follow-up:	30 full hours
Exercise / internship / seminar:	2 SWS	Term papers / presentations, etc.:	60 full hours
		Total workload:	approx. 150 full hours
Module Coordinator: Prof. Dipl.-Ing. Heike Matcha		Prerequisite for participation: -	

### Desired learning results:

#### Specialist competences

The students acquire basic knowledge in the field of steel constructions. They shall be enabled to identify and name various steel constructions as well as their features and capabilities.

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, practical application, ability to reflect, complex problem-solving, self-directed learning, learning and thinking strategies, media competence, information literacy, research skills

##### Social skills

Teamwork, group development, role flexibility, communication techniques, linguistic skills, conflict management

##### Personal skills

Stress management, motivation to learn, examination preparation, ability to engage in self-criticism

#### Learning content

During a series of lectures, basic knowledge of steel construction is acquired with a range of topics such as manufacturing and qualities of steel profiles, typical steel construction connections for steel skeleton constructions as well as building envelopes and installations for interior spaces. They are presented and discussed in detail by means of built examples and current research in the field of steel construction.

In parallel with the lecture, the gained knowledge is applied to a semester assignment which is in a not very complex context. This is a first application of steel constructions with focus on design and structural aspects of a steel skeleton construction as modular construction method with a thermal bridge-free envelope.

#### Type of examination

Project submission

#### Literature and learning materials

Atlas Moderner Stahlbau, 2013

DETAIL Praxis: Bauen mit Stahl, 2013

Stahl verstehen: Entwerfen und Konstruieren mit Stahl, 2011

## Module Description: Integral Planning 3 / Building Technology

3<sup>rd</sup> Semester

Module Code: IP3		ECTS Credits: 4	
Teaching and learning methods:		Attendance time: 45 full hours	
Lecture:	2 SWS	Preparation and follow-up:	30 full hours
Exercise / internship / seminar:	1 SWS	Term papers / presentations, etc.:	45 full hours
		Total workload:	approx. 120 full hours
Module Coordinator: Prof. Dipl.-Ing. Markus Hermann		Prerequisite for participation: -	

### Desired learning results:

#### Specialist competences

Basic knowledge of technical building systems and of the integral planning of technical building subconcepts with their components is acquired. The connections between architectural design, ease of use, structural design, building technology, energy demand and environment are recognised on a technical and creative level.

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, practical application, ability to reflect, complex problem-solving, self-directed learning, project management, media competence, information literacy, research skills

##### Social skills

Teamwork, group development, linguistic skills, conflict management

##### Personal skills

Motivation to learn, examination preparation, ability to engage in self-criticism

#### Learning content

Based on the consideration of building technology standards, resources and comfort requirements, the preliminary planning of technical building components and systems is attempted. Subconcepts such as drinking water, rainwater, wastewater, electrical, ventilation, heating, cooling, energy conversion, energy storage are integrally planned and vividly illustrated in an exercise during the semester. In addition, aspects of materials and energetic balancing relevant to building technology are examined.

#### Type of examination

Project submission

#### Literature and learning materials

Current list of the assignment

## Module Description: History of Architecture and Preservation of Monuments

3rd Semester

Module Code: AGD		ECTS Credits: 4	
Teaching and learning methods:		Attendance time:	45 full hours
Lecture:	2 SWS	Preparation and follow-up:	30 full hours
Exercise / internship / seminar:	1 SWS	Term papers / presentations, etc.:	45 full hours
		Total workload:	approx. 120 full hours
Module Coordinator: Prof. Dr.-Ing. Anke Fissabre		Prerequisite for participation: -	

### Desired learning results:

#### Specialist competences

##### History of Architecture

- knowing and understanding basic historical building typologies, structural shapes and construction methods from antiquity to the modern age
- knowing and applying the related specific architectural terminology
- perceiving, recognising and identifying architectural styles, building typologies and architectural situations
- recognising universal and epoch-spanning typologies and gestures of architecture
- analysing and assessing sample designs of all architectural eras in their conceptual, typological, constructive and semantic consequence
- ability to tap into the complex of historical architecture as a fully useable wealth of inspiration for own creative work

##### Preservation of Monuments

- knowledge of the basic fields of activity, tasks and methods of monument preservation
- understanding monument preservation assessment criteria and arguments
- development of own judgement in dealing with structures worthy of preservation
- recognition and assessment of monument values based on historic buildings
- development and application of own design positions in line with accepted preservation practice

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, scientific writing, practical application, ability to reflect, self-directed learning, learning and thinking strategies, project management, media competence, information literacy, research skills

##### Social skills

Teamwork, group development, role flexibility, communication techniques, linguistic skills, conflict management

##### Personal skills

Stress management, time management, motivation to learn, examination preparation, ability to engage in self-criticism

#### Learning content

The guided analysis of historical buildings trains the students' analytical understanding and thus their architectural judgement in general. Categories are demonstrated in the field of architectural history by means of which they learn to distinguish top-quality architecture from mere buildings. The Preservation of Monuments course aims to provide future architects with the problem awareness and the basic knowledge indispensable for designing within the context of existing historic buildings and for structural engineering tasks in terms of monument preservation.

#### Type of examination

Oral examination with prerequisite

#### Literature and learning materials

Lecture materials e-Learning

Architekturgeschichte und Denkmalpflege:

Vorlesungsmaterialien e-learning

Hubel, Achim: Denkmalpflege. Geschichte, Themen, Aufgaben, Stuttgart 2006.

Huse, Norbert (Hg.): Denkmalpflege. Deutsche Texte aus drei Jahrhunderten, München 1984.

Petzelt, Michael; Mader, Gert: Praktische Denkmalpflege, Stuttgart 1993.

Scheuermann, Ingrid (Hg.): Zeitschichten. Erkennen und Erhalten – Denkmalpflege in Deutschland. München, Berlin 2005.

Will, Thomas: Denkmalpflege und Stadt. Berlin 2020.

## Module Description: Project 4B

4th Semester

Module Code: PRO 4B		ECTS Credits: 13	
Teaching and learning methods:		Attendance time: 120 full hours	
Lecture:	1 SWS	Preparation and follow-up:	60 full hours
Exercise / internship / seminar:	7 SWS	Term papers / presentations, etc.:	180 full hours
		Total workload:	approx. 360 full hours
Module Coordinator: Prof. Dipl.-Ing. Heike Matcha		Prerequisite for participation: all modules 1 <sup>st</sup> +2 <sup>nd</sup> Sem.	

### Desired learning results:

#### Specialist competences

##### Project 4B

- methodically working out the basics of structural designing as a core competence of architects
- learning and further developing a method for constructional concepts of medium complexity; the focus on one of the various construction materials can be chosen
- independent preparation of a design with development and presentation on a conceptual design scale including constructive details

##### Project Plus

- recognising the correlation between design objectives and additional in-depth specialist knowledge

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, practical application, ability to reflect, complex problem-solving, self-directed learning, learning and thinking strategies, project management, media competence, information literacy, research skills

##### Social skills

Teamwork, group development, role flexibility, communication techniques, linguistic skills, conflict management

##### Personal skills

Stress management, motivation to learn, examination preparation, ability to engage in self-criticism

#### Learning content

##### Project 4B

The lecture series is about the construction and design in various material and construction areas. This is presented and discussed in detail by means of built examples and current research in the respective types of construction. In parallel with the lecture, the acquired knowledge is applied in a semester assignment dealing with construction and design in various material areas.

##### Project Plus

Introduction to integrated planning by integrating specialist knowledge and skills beyond the design task of the project.

#### Type of examination

Presentation Colloquium

#### Literature and learning materials

##### Project 4B

Vom Material zur Konstruktion, Deplazes Birkhäuser Verlag, latest edition Detail

Holzbauatlas, 2003 - Natterer, Winter, Herzog, Schweitzer, Volz Detail

Baustoffatlas, 2005 or newer - Hegger, Auch-Schwelk u.a.

Atlas Moderner Stahlbau, 2013 DETAIL

Praxis: Bauen mit Stahl, 2013

Stahl verstehen: Entwerfen und Konstruieren mit Stahl, 2011

Various DETAIL atlases (building material, masonry, timber construction, steel construction, glass, facade, etc.)

##### Project Plus

Topic-oriented according to reference list of the assignment

## Module Description: Competences 2

4th Semester (compulsory elective module)

Module Code: KOM2		ECTS Credits: 4	
Teaching and learning methods:		Attendance time:	45 full hours
Lecture:	- SWS	Preparation and follow-up:	30 full hours
Exercise / internship / seminar:	3 SWS	Term papers / presentations, etc.:	45 full hours
		Total workload:	approx. 120 full hours
Module Coordinator: Academic Dean		Prerequisite for participation: all modules 1 <sup>st</sup> +2 <sup>nd</sup> Sem.	

### Desired learning results:

#### Specialist competences

##### Field trip

- perceiving, recognising and understanding framework conditions, geographical reference, spaces, spatial effect, elements, construction methods and materialisation of selected targets in the course of a multi-day field trip
- vivid experience of abstract contents
- review and assessment of these abstract contents on site as well as perception of their meaning for the general context

##### Impromptu / Workshops (as an alternative to the field trip)

- development of spontaneous solutions for simple architectural topics and targeted brainstorming and convincing application of quick and simple techniques for presentation in 2D or 3D

##### Digital Skills

- learning and enhancing architecture-related skills from the fields of digital planning and building

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, practical application, ability to reflect, self-directed learning, media competence, information literacy, research skills

##### Social skills

Group development, role flexibility, communication techniques, linguistic skills, conflict management

Personal skills Stress management, motivation to learn

#### Learning content

##### Field trip

- beforehand, supervised training of research, reception, analysis and presentation of selected places/buildings and their planners/architects in reports, sketches, plan and image documentation, using and learning specific terminology
- multi-day inspection of selected contemporary or historic buildings, free spaces, cities, regions, specialist or related exhibitions, workshops, etc.
- on-site training of perceptiveness, articulation skills, ability to discuss and critical faculties

##### Impromptu / Workshops (as an alternative to the field trip)

- development and presentation of a solution for a simple and straightforward planning task within a limited period of time

##### Digital Skills:

The course varies with the following contents:

- application of digital tools, methods and processes for designing, planning, representing, simulating, presenting, organising construction tasks

#### Type of examination

Performance record

#### Literature and learning materials

Project-related reference library

## Module Description: Elective Module

3rd to 6th Semester (compulsory elective module)

Module Code: WM		ECTS Credits: 5	
Teaching and learning methods:		Attendance time:	60 full hours
Lecture:	2 SWS	Preparation and follow-up:	30 full hours
Exercise / internship / seminar:	2 SWS	Term papers / presentations, etc.:	60 full hours
		Total workload:	approx. 150 full hours
Module Coordinator(s): Academic Dean		Prerequisite for participation: all modules 1st+2nd Sem.	

### Architectural Theory course

#### Desired learning results:

##### Specialist competences

Architectural theory serves to find answers to the questions architecture has dealt with right from the start: the question concerning the relation of construction, function and beauty and of the linguistic and meaningful qualities of the buildings. The course aims to discuss historic and temporary architectural theory texts which provide an initially foreign, but ultimately fascinating and inspiring access to the ideas, conceptions and reasons of architecture for advanced students of architecture, which they can use for their own design positioning. The following skills are taught in the course:

- knowledge of basic architectural theory questions and problems since Vitruv
- knowledge and understanding of basic replies to these questions from antiquity to modern times
- ability to understand different types of architectural theory texts and to understand and question their individual-subjective contents within the context of overarching questions of architectural theory
- ability to independently address architectural theory issues and give a reasoned opinion regarding architectural theory problems

##### Interdisciplinary competences

###### Methodical competence

Presentation techniques, scientific writing, practical application, ability to reflect, complex problem-solving, self-directed learning, learning and thinking strategies, media competence, information literacy, research skills

###### Social skills

Teamwork, group development, role flexibility, communication techniques, linguistic skills, conflict management

###### Personal skills

Stress management, motivation to learn, examination preparation, ability to engage in self-criticism

##### Learning content

The students learn about basic architectural theory questions and problems. The lecture is not chronological, but arranged by topics. The contents are developed based on excerpts from important architectural theory texts which are read and analysed during the course. In the accompanying seminar, the students address selected architectural theory topics independently and thoroughly. Particular focus is on the connection between scientific and creative approaches.

##### Type of examination

Project submission

##### Literature and learning materials

Lecture- and seminar-related e-Learning

Kruft, Hanno-Walter: Geschichte der Architekturtheorie. Von der Antike bis zur Gegenwart, München 1985

Neumeyer, Fritz (Hg.): Quellentexte zur Architekturtheorie, München 2002

Moravánszky, Ákos (Hg.): Architekturtheorie im 20. Jahrhundert. Eine kritische Anthologie, Wien 2003

## Structural Damage course

### Desired learning results:

#### Specialist competences

The “Structural Damage” seminar shall give the students the ability to recognise deeper causal links for the prevention of structural damage. In addition to theoretical principles of essential rules of building technologies, building technology and component-related weak points shall be identified and proper professional maintenance methods shall be learned using examples from building practice. An initial draft developed by 2<sup>nd</sup> semester students shall be developed in detail so that it is nearly “ready for construction”.

Based on the created designs, an implementation plan at a scale of 1:50 (layout and section) as well as a detailed plan at a scale of 1:10/1:5 – as required – eaves, drainage, window and door connections shall be developed. In addition to the principles of the rules of building technology discussed in the lecture, the knowledge acquired so far across the disciplines from the fields of structural design, statics, technical building equipment, building physics shall be put into practice.

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, practical application, ability to reflect, information literacy, research skills

##### Social skills

Communication techniques, linguistic skills

##### Personal skills

Motivation to learn, examination preparation, ability to engage in self-criticism

#### Learning content

The lecture series deals with the following topics:

- meaning of rules, definitions of defect and damage
- damage to below-ground structural elements I: hydrogeological basics and drainage
- damage to below-ground structural elements II: sealing
- damage to exterior walls and facades
- damage from environmental impacts and pests
- damage to interior spaces and wet rooms
- damage to load-bearing and bracing components
- damage to flat and pitched roofs
- damage caused by thermal bridges

#### Type of examination

Presentation Colloquium

#### Literature and learning materials

Lecture notes, various standards, guidelines and information sheets

## Building Information Modeling course

### Desired learning results:

#### Specialist competences

- methodically working out the coordination processes as overarching management quality in the professional field of architecture by using model-based digital methods
- learning and further developing methods for the independent formulation of possible solutions in quality assurance, cost and deadline monitoring and transparent communication in the project
- learning the skills of a BIM coordinator in the project; the training contents are in compliance with the guideline VDI/bsi 2552.8.1

#### Interdisciplinary competences

##### Methodical competence

Practical application, ability to reflect, complex problem-solving, self-directed learning, learning and thinking strategies, project management, media competence, information literacy

##### Social skills

Teamwork, group development, role flexibility, communication techniques, conflict management



### Personal skills

Motivation to learn, examination preparation, ability to engage in self-criticism

### **Learning content**

- model-based project work as basis for the coordination process of the BIM overall coordination of the various planners in project, tasks and functions
- analysis and inspection of the project quality with digital support
- preparation of a cost calculation with digital support
- interrelations between the project participants
- interrelations of the project parameters costs, deadlines, qualities

### **Type of examination**

Presentation Colloquium

### **Literature and learning materials**

“BIM Leitfaden Endbericht”; BMVBS; 2014

“COBIM Deutsch”, Jade Hochschule Oldenburg, 2014

“BIM User Manual”, Version 2.0, Norwegian Home Builders’ Association, 2012

## **Building Theory course**

### **Desired learning results:**

#### **Specialist competences**

- methodically working out the basics of building theory as a basic element of architectural designs
- developing the ability to grasp, interpret and, in terms of organisation and composition, solve more complex typologies

#### **Interdisciplinary competences**

##### Methodical competence

Presentation techniques, ability to reflect, information literacy, research skills

##### Social skills

Communication techniques, linguistic skills

##### Personal skills

Motivation to learn, examination preparation, ability to engage in self-criticism

### **Learning content**

The most important basic concepts of building theory are worked out and compared by means of different typologies. Function, room programme, development, order and structure are explained using examples. Planned examples of different architects are used to work out, present and assess the aforementioned aspects in stipulated plans; the aspects are then presented and discussed in the group.

### **Type of examination**

Presentation Colloquium

### **Literature and learning materials**

T. Jocher, W. Stamm-Teske, A. Lederer, M. Gasser, Raumpilot, Stuttgart, Krämer 2010

M. Dudek: Entwurfsatlas Schule / Kindergärten, Basel, Birkhäuser 2007

R. Hascher: Entwurfsatlas Bürobau, Basel, Birkhäuser 2002

## **Design course**

### **Desired learning results:**

#### **Specialist competences**

Ability to contrast and discuss design statements and their link to design topics and architecture. Ability to test own graphic expressions in various techniques and apply them to the student’s own project.

## **Interdisciplinary competences**

### Methodical competence

Presentation techniques, practical application, ability to reflect, complex problem-solving, self-directed learning, learning and thinking strategies, project management, media competence, information literacy, research skills

### Social skills

Communication techniques, linguistic skills

### Personal skills

Motivation to learn, ability to engage in self-criticism

## **Learning content**

Artistic, architectural and graphic positions are analysed and discussed in smaller scientific talks. The student then develops his/her own project where he/she formulates and presents a self-created artistic concept with architectural reference. The results are compared in an exhibit.

## **Type of examination**

Project submission

## **Literature and learning materials**

Additional information geared towards the relevant semester programme

## **Load-Bearing Structure course**

### **Desired learning results:**

#### **Specialist competences**

- selecting, assessing and implementing constructive solutions for a larger-scale design
- independent development of constructive solutions for structures
- design and elaboration of details in terms of the load-bearing structure planning and structural design

#### **Interdisciplinary competences**

##### Methodical competence

Presentation techniques, ability to reflect, complex problem-solving, self-directed learning, learning and thinking strategies, media competence, information literacy, research skills

##### Social skills

Teamwork, group development, role flexibility, communication techniques, linguistic skills

##### Personal skills

Motivation to learn, examination preparation, ability to engage in self-criticism

#### **Learning content**

Connections between design, load-bearing structure and structural design aspects. This content is explained on the basis of buildings where the load-bearing structure is decisive for the design. Buildings such as bridges and towers characterised by superior support structures expand on the contents. Explanation of the static mechanism of larger constructions. Particular focus is on aspects such as the technical and aesthetic design of support structures and their points of junction and connection. The connection to structural elements is explained.

- structural behaviour and geometry of complex, including spatial load-bearing structures, especially domes, membrane and cable structures, folded structures.
- load-bearing structure-specific aspects for material and constructive details
- analysis of erected load-bearing structures
- use of digital tools for the load-bearing structure analysis
- presentation of adequate model making techniques
- the knowledge gained is creatively used and selectively enhanced in several impromptu designs
- priorities may vary by semester

#### **Type of examination**

Presentation Colloquium

#### **Literature and learning materials**

Stahlbauatlas, Schulitz, Sobek, Habermann - Birkhäuser, 1999 Holzbauatlas, Natterer, Herzog, Schweitzer, Volz, Winter, Birkhäuser 2003 Tabellen zur Tragwerkslehre, Krauss,Führer,Jürges – Müller, 2010

## Urban Development / Public Space course

### Desired learning results:

#### Specialist competences

- basic understanding of the relevance of public spaces and the interdependence of urban development, architecture and free space
- basic knowledge of the formation of public spheres and the design of development and participation processes
- ability to develop generally different ideas for public spaces in complex spatial context and to further develop them to achieve an appropriate design
- knowledge of different possibilities to design and program public inside and outside spaces
- knowledge of the different presentation options in the various scales of the planning approaches

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, practical application, ability to reflect, complex problem-solving, self-directed learning, learning and thinking strategies, information literacy, research skills

##### Social skills

Teamwork, communication techniques, linguistic skills

##### Personal skills

Motivation to learn, ability to engage in self-criticism

#### Learning content

- introduction to the basic principles of the design of sustainable / resilient public spaces (stocktaking, analysis, utilisation needs, targets, development of different solutions, assessment and decision)
- socio-economic, infrastructural and ecological aspects such as offers for different user groups, suitable use of ground floor zones, climate adaptation, urban agriculture, integrated systems and infrastructures as well as mobility
- scientific-technical and aesthetic-artistic basics, modern and sustainable concepts in connection with urban structures as well as design details.

#### Type of examination

Presentation Colloquium

#### Literature and learning materials

Städte für Menschen, Jan Gehl – Jovis 2015

The public chance – new urban landscape, Aurora Fernández Per – a+t Ed., 2008

Urban Catalyst: Mit Zwischennutzung Stadt entwickeln, Philipp Oswald, Klaus Overmeyer, Philipp Misselwitz – DOM publishers, 2014

Hands-On Urbanism 1850 - 2012: Vom Recht auf Grün, Elke Krasny, Architekturzentrum Wien (Hrsg.) – Turia + Kant, 2012  
Parks entwerfen. Berlins Park am Gleisdreieck oder die Kunst, lebendige Orte zu schaffen, Leonard Grosch, Constanze A. Petrow – jovis, 2015  
Fluss.Raum.Entwerfen. Planungsstrategien für urbane Fließgewässer, Martin Prominski, Antje Stokman, Daniel Stimberg, Hinnerk Voermanek, Susanne Zeller – jovis, 2012

Platzatlas: Stadträume in Europa, Sophie Wolfrum – Birkhäuser, 2014

Plätze, Parks & Co. Stadträume im Wandel. Analysen, Positionen, Konzepte, Antje Havemann, Klaus Selle (Hrsg.) – Dorothea Rohn, 2010

Public Spheres. Wer sagt, dass der öffentliche Raum funktioniert? Eine European Diskussion, Kaye Geipel, Ulrike Pöeverlein – European, 2008

Verfall und Ende des öffentlichen Lebens: Die Tyrannei der Intimität, Richard Sennett – Fischer, 2004

Grünplanung für Städte. Planung, Entwurf, Bau und Erhaltung, Ralph Gälzer – Ulmer, 2001  
Landschaftsarchitektur Europa. Fieldwork – Birkhäuser, 2006

Freiraumplanung. Hausgärten, Grünanlagen, Stadtlandschaften, Günter Mader – DVA, 2004

Landschaft planen. Dimensionen, Elemente, Typologien, Zimmermann, Astrid – BIRKHÄUSER Verlag, 2014

Landschaft konstruieren. Materialien, Techniken, Bauelemente, Astrid Zimmermann (Hrsg.) – BIRKHÄUSER Verlag, 2015

## System Building course

### Desired learning results:

#### Specialist competences

The students gain basic knowledge of modern industrial prefabrication of components and digital manufacturing methods as well as their construction principles.

- discovering the development of serial mass production to individual customised production
- understanding and using digital production methods and modular construction systems in detail

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, practical application, ability to reflect, complex problem-solving, self-directed learning, learning and thinking strategies, project management, media competence, information literacy, research skills

##### Social skills

Teamwork, group development, role flexibility, communication techniques, linguistic skills, conflict management

##### Personal skills

Stress management, motivation to learn, examination preparation, ability to engage in self-criticism

#### Learning content

A series of lectures deals with basic knowledge of industrial construction methods (prefabrication of components and their joining). The spectrum of the components is explained in terms of size, form and materiality. The latest developments of digital production technologies are presented, as well as the related paradigm shift in prefabrication, from serial mass production to individual customised production. They are presented and discussed in detail by means of built examples and current research. In parallel with the lecture series, the knowledge gained is applied in practical design exercises on pre-fabricated modular or parametric structures in material, component sizes and construction from the overall design to the joining detail.

#### Type of examination

Presentation Colloquium

#### Literature and learning materials

Elemente + Systeme, Modulares Bauen; Staib, Dörrhöfer, Rosenthal, Birkhäuser 2008  
Digitale Prozesse: Planung, Gestaltung, Fertigung; Hauschild, Karzel, DETAIL Praxis 2010  
Wendepunkte im Bauen: Von der seriellen zur digitalen Architektur, Edition DETAIL 2010  
Aktuelle Zeitschriften zum Thema: DETAIL, AD, Archithese

## Facade Engineering course

### Desired learning results:

#### Specialist competences

The students gain basic knowledge of modern industrial prefabrication of components and digital manufacturing methods as well as their construction principles.

- discovering the development of serial mass production to individual customised production
- understanding and applying digital manufacturing methods and basic knowledge in the field of various construction methods of facade systems, their recording and assessment
- first experiences in dealing with facade constructions by applying the knowledge gained during the semester exercise
- advanced exercises on various scales up to 1:1 detail
- improved awareness in dealing with material and dimension in terms of efficient and sustainable use of facade technologies

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, practical application, ability to reflect, complex problem-solving, self-directed learning, learning and thinking strategies

##### Social skills

Communication techniques, linguistic skills, conflict management

Personal skills

Motivation to learn, examination preparation, ability to engage in self-criticism

**Learning content**

Types and designs of facade systems and their various requirements and fields of use:

- various systems, construction types and explanation of the framework conditions
- climate, energy and building physics characteristics of facade constructions and their structural features from today's point of view. The varied possibilities in dealing with facade constructions are taught by means of planning examples and implemented projects
- semester assignment dealing with the use of various facade technologies
- application and development of solutions for the use of facade constructions in consideration of structural and energy aspects

**Type of examination**

Presentation Colloquium

**Literature and learning materials**

Solares Bauen, Christian Schittich: Detail

Gebäudehüllen, Christian Schittich: Detail

Fassadenatlas, Herzog, Krippner, Lang: Detail

## Module Description: Integral Planning 4 / Building Technology

4th Semester

Module Code: IP4

ECTS Credits: 4

Teaching and learning methods:

Lecture: 2 SWS  
Exercise / internship / seminar: 2 SWS

Attendance time:

60 full hours  
Preparation and follow-up: 30 full hours  
Term papers / presentations, etc.: 30 full hours  
Total workload: approx. 120 full hours

Module Coordinator: Prof. Dipl.-Ing. Markus Hermann

Prerequisite for participation: all modules 1st+2nd Sem.

### Desired learning results:

#### Specialist competences

Detailed knowledge of technical building systems and of the integral planning of technical building subconcepts with their components is acquired. Dependencies and interactions of building technology within the design and construction process are recognised. The building technology planning is understood as an integral part of the architectural design.

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, practical application, ability to reflect, complex problem-solving, project management, media competence, information literacy, research skills

##### Social skills

Teamwork, group development, communication techniques, conflict management

##### Personal skills

Motivation to learn, examination preparation, ability to engage in self-criticism

#### Learning content

Continuation, enhancing and vivid illustration of the integral preliminary planning of building technology subconcepts such as sanitation, electrical, ventilation, heating, cooling, energy conversion, energy storage by means of an exercise during the semester.

- design concepts of sanitary facilities
- aspects of materials relevant to building technology
- installation
- energetic balancing

#### Type of examination

Presentation Colloquium

#### Literature and learning materials

Current reference list of the assignment

## Module Description: Urban Development 2

4th Semester

Module Code: SB2		ECTS Credits: 4	
Teaching and learning methods:		Attendance time:	45 full hours
Lecture:	2 SWS	Preparation and follow-up:	30 full hours
Exercise / internship / seminar:	1 SWS	Term papers / presentations, etc.:	45 full hours
		Total workload:	approx. 120 full hours
Module Coordinator: Prof. Dipl.-Ing. Isabel Maria Finkenberger		Prerequisite for participation: all modules 1st+2nd Sem.	

### Desired learning results:

#### Specialist competences

Basic knowledge of the levels, methods and instruments of spatial planning

- effects of the specifications and regulations under planning law on the spatial development and design
- understanding framework conditions, connections and future trends of spatial transformation
- application of the acquired skills on an urban space level

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, ability to reflect, complex problem-solving, self-directed learning, learning and thinking strategies, research skills

##### Social skills

Teamwork, role flexibility, communication techniques, linguistic skills

##### Personal skills

Motivation to learn, ability to engage in self-criticism

#### Learning content

The students learn urban planning as an interdisciplinary field of work that deals with the spatial development of human settlements and is related to transformation processes on various scale levels. Apart from methods and instruments of spatial planning, topics such as housing, land policy, demography, migration, mobility and infrastructures, economy, climate and ecology, digitisation and participation as well as mega trends play a critical role. The aim is to give a broad understanding for the complexity of urban planning issues and to show the necessity to relate the students' own spatial design to the specific context and to formulate it so that it is sustainable in the future.

- introduction to methods and instruments of spatial planning and to topics of spatial transformation
- exercises in the covered topics
- site visits related to the exercises

#### Type of examination

Project submission

#### Literature and learning materials

Baugesetzbuch: mit Immobilienwertvermittlungsverordnung, Baunutzungsverordnung,

Planzeichenverordnung, Raumordnungsgesetz, Raumordnungsverordnung, Wilhelm Söfker – dtv 2018 Vom

Bauleitplan zur Baugenehmigung, Michael Hauth – dtv, 2011

Der Umzug der Menschheit: Die transformative Kraft der Städte. Hauptgutachten 2016, Wissenschaftlicher Beirat der Bundesregierung

Globale Umweltveränderungen WBGU – 2016

Die Große Transformation. Eine Einführung in die Kunst gesellschaftlichen Wandels – Fischer, 2018

Alle wollen wohnen. Gerecht. Sozial. Bezahlfähig. Ursula Kleefisch-Jobst, Peter Köddermann, Karen Jung (Hrsg.) – jovis, 2017

Ware: Wohnen. Politik. Ökonomie. Städtebau, Christopher Dell – jovis, 2013

Die neue Völkerwanderung. Arrival City, Douglas Saunders – Pantheon, 2013

Befreiung vom Überfluss. Auf dem Weg in die Postwachstumsökonomie, Niko Paech – oekom, 2012

Spatial Agency: Other Ways of Doing Architecture, Nishat Awan, Tatjana Schneider, Jeremy Till – Taylor & Francis, 2011

New Urban Professions. A Journey through Practice and Theory, Michael Koch, Renée Tribble, Yvonne Siegmund, Amelie Rost, Yvonne Werner (Hrsg.) – jovis, 2018

## Module Description: Project 5B

5th Semester

Module Code: PRO 5B		CTS Credits: 15	
Teaching and learning methods:		Attendance time: 120 full hours	
Lecture:	1 SWS	Preparation and follow-up:	60 full hours
Exercise / internship / seminar:	7 SWS	Term papers / presentations, etc.:	270 full hours
		Total workload:	approx. 450 full hours
Module Coordinator: : Prof. Dr. Carolin Stapenhorst		Prerequisite for participation: all modules 1 <sup>st</sup> +2 <sup>nd</sup> Sem.	

### Desired learning results:

#### Specialist competences

##### Project 5B

- solution of an architectural task of medium complexity in the necessary scales and representations
- recognising and assessing the decisive factors of an architectural process and their integration in the overall task
- learning a method for designing architectural concepts of medium complexity and thus achieving design expertise
- development and testing of an architectural approach to realistic problems

##### Project Plus

- recognising the interaction between planning processes and design objectives as well as additional in-depth specialist topics beyond the project's design task

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, practical application, ability to reflect, complex problem-solving, self-directed learning, learning and thinking strategies, project management, media competence, information literacy, research skills

##### Social skills

Teamwork, group development, role flexibility, communication techniques, linguistic skills, conflict management

##### Personal skills

Stress management, motivation to learn, examination preparation, ability to engage in self-criticism

#### Learning content

##### Project 5B

Realistic design topics of medium complexity are provided by subject areas of the faculty. Depending on the task, they vary in place, use and specific design objectives, aesthetic, social, technical, economic and ecological requirements. Based on the development of design basics and the parameters relevant to the respective task, the design is successively and largely independently developed and reflected in a cycle of doing, comparing, assessing and changing. Alternative design approaches are explained, discussed, compared and assessed. The selected design approach is elaborated and presented in the targets, requirements, scales, representations and performances described in the assignment.

##### Project Plus

Integrated planning by integrating specialist knowledge and skills beyond the design task of the project. The assignment is connected with the project. It supplements the project assignment by additional aspects and/or expands on it in a select sub-field.

#### Type of examination

Presentation Colloquium

#### Literature and learning materials

##### Project 5B

Project-related reference library

##### Project Plus

Topic-oriented according to reference list of the assignment



## Module Description: Competences 3

5th Semester (compulsory elective module)

Module Code: KOM3		ECTS Credits: 5	
Teaching and learning methods:		Attendance time: 75 full hours	
Lecture:	- SWS	Preparation and follow-up: 30 full hours	
Exercise / internship / seminar:	5 SWS	Term papers / presentations, etc.: 75 full hours	
		Total workload: approx. 180 full hours	
Module Coordinator: Prof. Dr. Carolin Stapenhorst / Dr. Daniela Thiels / Structural Design name hitherto unknown + Prof. Dr. Carolin Stapenhorst		Prerequisite for participation: all modules 1 <sup>st</sup> +2 <sup>nd</sup> Sem.	

### Desired learning results:

#### Specialist competences

##### Digital Skills

- learning and enhancing architecture-related skills from the fields of digital planning and building

##### Project week

- preparatory establishment of design parameters for the independent solution of an architectural design task within a certain period of time (workload approx. 60 full hours)

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, practical application, ability to reflect, self-directed learning, learning and thinking strategies, media competence, information literacy, research skills

##### Social skills

Communication techniques, linguistic skills, conflict management

Personal skills Stress management, motivation to learn

#### Learning content

##### Digital Skills

The course varies with the following contents:

- application of digital tools
- methods and processes for designing, planning, representing, simulating, presenting, organising construction tasks

##### Project week

- methods for the preparatory establishment of the basis of the project
- research, development and presentation of the students' own results in sketches, plan and image documentation
- using and learning specific terminology
- perceptiveness training (e.g. during one-day field trips)

#### Type of examination

Presentation Colloquium

#### Literature and learning materials

Project-related reference library

## Module Description: Management 1

5th Semester

Module Code: MAG1		ECTS Credits: 5	
Teaching and learning methods:		Attendance time:	75 full hours
Lecture:	4 SWS	Preparation and follow-up:	30 full hours
Exercise / internship / seminar:	1 SWS	Term papers / presentations, etc.:	45 full hours
		Total workload:	approx. 150 full hours
Module Coordinator: Academic Dean		Prerequisite for participation: all modules 1 <sup>st</sup> +2 <sup>nd</sup> Sem.	

### Desired learning results:

#### Specialist competences

##### Management 1

- methodically working out the scope of work of an architect and their management qualities in coordinating the planning team
- acquiring basic knowledge about structuring the project implementation
- learning and further developing methods for preparing and checking cost and fee calculations
- development of quality assurance and cost monitoring methods

##### Building Law 1

- basic knowledge about the contractual obligations that are relevant to the construction work
- recognising any legal issues arising in the construction process
- assessment of the different legal solutions and decision between the available legal alternatives

#### Interdisciplinary competences

##### Methodical competence

Practical application, ability to reflect, self-directed learning, learning and thinking strategies, project management, research skills

##### Social skills

Teamwork, group development, role flexibility, conflict management

##### Personal skills

Stress management, motivation to learn, examination preparation, ability to engage in self-criticism

#### Learning content

##### Management 1

- scope of work of the planning participants according to the *HOAI* [official scale of fees for services by architects and engineers], particularly Lph [services phase] 1-5, coordination obligation of architects within the planning process
- cost calculation and verification according to DIN 276
- cost monitoring and control
- basics of quality assurance
- fee calculation according to the *HOAI*
- space calculations according to DIN 277, *WohnflVO* [German ordinance on living space] and the gif [Society of Property Researchers, Germany]

##### Building Law 1

Basics of private building law are explained and expanded using examples of particular cases from the current higher court rulings. The teaching content especially includes: The fundamental contractual rights and obligations of the building contract parties, defects and rights relating to defects as well as acceptance and consequences of acceptance; early cessation of the building contract by termination, securing the claim to remuneration and the legal requirements the architect needs to meet in his/her work.

#### Type of examination

##### Management 1

Presentation Colloquium

##### Building Law 1

Exercises as prerequisite and written examination

## **Literature and learning materials**

### Management 1

- “Kommentar zur HOAI 2013”, Horst Locher, Wolfgang Koeble, Werner Frik; Hrsg. Wolfgang Koeble, Werner Verlag 2014
- “Baukostenplanung und -steuerung”, Klaus D. Siemon; Springer Verlag Wiesbaden 2016
- “Baukosten bei Neu- und Umbauten”, Klaus D. Siemon; Springer Verlag Wiesbaden 2009
- “DIN 276”, Deutsches Institut für Normung, Beuth Verlag 2008
- “DIN 277”, Deutsches Institut für Normung, Beuth Verlag 2014
- “Effiziente Terminplanung von Bauprojekten”, Rolf Reppert, Springer Verlag Wiesbaden 2016
- “Bauobjektüberwachung”, Falk Würfele, Bert Bielefeld, Mike Gralla; Springer Verlag Wiesbaden 2017
- “Standardleistungsbuch für das Bauwesen”, gemeinsamer Ausschuss Elektronik im Bauwesen (GAEB), Beuth Verlag 1997

### Building Law 1

- Werner/Pastor, “Der Bauprozess”, Werner Verlag

## Module Description: Pro Basic

6th Semester

Module Code: PB		ECTS Credits: 8	
Teaching and learning methods:		Attendance time: 45 full hours	
Lecture:	- SWS	Preparation and follow-up:	30 full hours
Exercise / internship / seminar:	3 SWS	Term papers / presentations, etc.:	105 full hours
		Total workload:	approx. 180 full hours
Module Coordinator: Prof. Dipl.-Ing. Frank Hausmann / Prof. Dipl.-Ing. Ulrich Eckey		Prerequisite for participation: all modules 1 <sup>st</sup> to 5 <sup>th</sup> Sem.	

### Desired learning results:

#### Specialist competences

Independent establishment of parameters for the independent solution of an architectural design task within the context of Project 6B. Impromptu and preliminary designs for simple architectural topics which solidify the targeted brainstorming and convincing application of quick and simple techniques for presentation in 2D or 3D within a limited period of time.

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, practical application, ability to reflect, complex problem-solving, self-directed learning, learning and thinking strategies, project management, media competence, information literacy, research skills

##### Social skills

Group development, communication techniques, linguistic skills, conflict management

##### Personal skills

Stress management, motivation to learn, examination preparation, ability to engage in self-criticism

#### Learning content

- methodological analysis and elaboration of function and programme
- representation of the location in the model
- analysis of the location
- research of built examples of a similar use / programme
- research of assignment-specific relevant rules, standards, regulations and laws
- summary and documentation of the results
- developing and presenting solution ideas

#### Type of examination

Presentation Colloquium

#### Literature and learning materials

Project-related reference library

## Module Description: Project 6B

6th Semester (Final Project)

Module Code: PRO 6B		ECTS Credits: 12 (9 ECTS + colloquium 3 ECTS)	
Teaching and learning methods:		Attendance time:	45 full hours
Lecture:	- SWS	Preparation and follow-up:	30 full hours
Exercise / internship / seminar:	3 SWS	Term papers / presentations, etc.:	375 full hours
Time to finish usually approx. 9 weeks, but at least 6 weeks		Total workload:	approx. 450 full hours
Module Coordinator: Prof. Dipl.-Ing. Frank Hausmann / Prof. Dipl.-Ing. Ulrich Eckey		Prerequisite for participation: Module Pro Basic	

### Desired learning results:

#### Specialist competences

- solution of an architectural task of medium complexity in the necessary scales and representations
- recognising, assessing and prioritising the decisive factors of an architectural process and their integration in the overall task
- independent application of a method for designing architectural concepts of medium complexity and thus expansion of design expertise
- achieving an architectural approach to realistic problems

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, practical application, ability to reflect, complex problem-solving, self-directed learning, learning and thinking strategies, project management, media competence, information literacy, research skills

##### Social skills

Communication techniques, linguistic skills

##### Personal skills

Stress management, motivation to learn, examination preparation, ability to engage in self-criticism

#### Learning content

Realistic design topics of medium complexity are provided by subject areas of the faculty. Depending on the task, they vary in place, use and specific design objectives, aesthetic, social, technical, economic and ecological requirements. The design is successively and independently developed in a cycle of doing, comparing, assessing and changing. Alternative design approaches are reflected, compared and assessed by applying self-criticism. The final design is elaborated in the targets, requirements, scales, representations and performances described in the assignment.

##### Colloquium

Professional presentation of the work results in a colloquium

#### Type of examination

Presentation Colloquium

#### Literature and learning materials

Project-related reference library

## Module Description: Management 2

6th Semester

Module Code: MAG2		ECTS Credits: 5	
Teaching and learning methods:		Attendance time: 75 full hours	
Lecture:	4 SWS	Preparation and follow-up:	30 full hours
Exercise / internship / seminar:	1 SWS	Term papers / presentations, etc.:	45 full hours
		Total workload:	approx. 150 full hours
Module Coordinator: Academic Dean		Prerequisite for participation: all modules 1 <sup>st</sup> +2 <sup>nd</sup> Sem.	

### Desired learning results:

#### Specialist competences

##### Management 2

- methodological enhancement of the work of architects and the other planning participants as project team, especially in the construction phase
- learning basic skills for scheduling and forecasting the project implementation and further development of methods for coordinating the project implementation
- learning the basics of award processes and contents
- further development of quality assurance methods

##### Building Law 2

- basic knowledge about the contractual obligations that are relevant to the construction work
- recognising any legal issues arising in the construction process
- assessment of the different legal solutions and decision between the available legal alternatives

#### Interdisciplinary competences

##### Methodical competence

Presentation techniques, practical application, ability to reflect, complex problem-solving, self-directed learning, learning and thinking strategies, project management, research skills

##### Social skills

Teamwork, role flexibility, conflict management

##### Personal skills

Motivation to learn, examination preparation, ability to engage in self-criticism

#### Learning content

##### Management 2

- scope of work of the planning participants according to *HOAI* LP 6-9, coordination obligations within the planning process
- contents and differences of bills of quantities, competitive and functional tendering, *Standardleistungsbuch (StLB, Standard Services Book)* overview
- structure and differences of schedules in the different project phases
- quality assurance and documentation

##### Building Law 2

Basics of private building law are explained and expanded using examples of particular cases from the current higher court rulings. The teaching content especially includes: The fundamental contractual rights and obligations of the building contract parties, defects and rights relating to defects as well as acceptance and consequences of acceptance; early cessation of the building contract by termination, securing the claim to remuneration and the legal requirements the architect needs to meet in his/her work.

#### Type of examination

##### Management 2

Presentation Colloquium

##### Building Law 2

Exercises as prerequisite and written examination

## **Literature and learning materials**

### Management 2

“Kommentar zur HOAI 2013”, Horst Locher, Wolfgang Koeble, Werner Frik; Hrsg. Wolfgang Koeble, Werner Verlag 2014

“Baukostenplanung und -steuerung”, Klaus D. Siemon; Springer Verlag Wiesbaden 2016

“Baukosten bei Neu- und Umbauten”, Klaus D. Siemon; Springer Verlag Wiesbaden 2009

“DIN 276”, Deutsches Institut für Normung, Beuth Verlag 2008

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“Effiziente Terminplanung von Bauprojekten”, Rolf Reppert, Springer Verlag Wiesbaden 2016

“Bauobjektüberwachung”, Falk Würfele, Bert Bielefeld, Mike Gralla; Springer Verlag Wiesbaden 2017

“Standardleistungsbuch für das Bauwesen”, gemeinsamer Ausschuss Elektronik im Bauwesen (GAEB), Beuth Verlag 1997

### Building Law 2

Werner/Pastor, “Der Bauprozess”, Werner Verlag