HAWK Fakultät Bauen und Erhalten Hildesheim

Module
Handbook

Bachelor of Architecture

Valid from winter semester 2019/20
Last updated April 2021

Hochschule für angewandte Wissenschaft und Kunst Hildesheim/Holzminden/Göttingen
University of Applied Sciences and Arts
www.hawk.de/b

Preface:

The Bachelor of Architecture study program aims to provide successful graduates with general and subject-specific knowledge, skills, and competencies that, after critical reflection, enable them to act independently and responsibly in a constantly evolving professional environment. Graduates have a broad and integrated basic and specialized knowledge in the field of architecture, especially in the areas of design and building theory, general sciences, technical sciences, and representation and design. The acquisition of interdisciplinary qualifications is an integral part of the program. They are able to understand theories, principles and methods of the field and to deepen their knowledge. The knowledge, skills and competences the students acquire can be applied largely independently to work out solutions to problems in their field of expertise.

The Bachelor's degree awarded upon completion of the program is a first professional qualifying degree at Level 1 of the *Qualifications Framework for German Higher Education Qualifications*. The degree qualifies the student to enter studies at Level 2 (Master's programs). Please note that a six-semester course of study in architecture only allows a graduate to use the protected professional title of "architect" according to the relevant legal regulations of the federal states under certain circumstances. This requires registration in the list of architects in one of the chambers of architects, which usually requires that a minimum of four years of standard studies have been completed. Bachelor graduates of the architecture program at HAWK can fulfill this requirement by successfully completing a consecutive Master's program in architecture.

The entire Bachelor of Architecture program is the same and mandatory for all students. However, elective options exist within the framework of two modules officially assigned to the 6th semester. Please note that the Individual Profile Studies module can be completed during the course of the degree program, depending on what HAWK-Plus has to offer.

The student workload is listed in the module descriptions at the top of the semester hours section. The teaching capacity listed below does not necessarily correspond to this; if more weekly teaching hours are listed there, then this means a division into smaller, possibly parallel working groups.

Preparatory and further literature references/recommendations will be given at the beginning of each course or via the Stud.IP communication platform in advance. Students must also register there for the modules.

Students are strongly advised to seek academic advising, especially with regard to possible further qualification.

Appendix 3: Study plan for a Bachelor's degree in Architecture

Course code	Module name	Credit points per semester						Classroom attendance	Home study	Workload	Type of examination
		1	2	3	4	5	6				
BA 1-1	**First Project**	**12**						180	180	360	PA
BA 1-2	**Building and Cultural History**	**6**						90	90	180	K2
BA 1-3	**Building Materials Science 1**	**3**						45	45	90	K1
BA 1-4	**Structural Engineering 1**	**3**						45	45	90	K2
BA 1-5	**Building construction 1**	**6**						90	90	180	StA
BA 2-1	**Project: Context City**		**12**					180	180	360	PA
BA 2-2	**Building Survey, CAD 2D**		**6**					90	90	180	StA
BA 2-3	**Building Materials Science 2**		**3**					45	45	90	K1
BA 2-4	**Structural Engineering 2**		**3**					45	45	90	K1
BA 2-5	**Building Construction 2, Building Physics 1**		**6**					90	90	180	K2
BA 3-1	**Draft Project**			**12**				180	180	360	PA
BA 3-2	**Urban Development 1**			**6**				90	90	180	StA
BA 3-3	**Building Services 1**			**3**				30	60	90	K1
BA 3-4	**Structural Engineering 3**			**3**				45	45	90	StA
BA 3-5	**Building Construction 3, Building Physics 2**			**6**				90	90	180	K2
BA 4-1	**Design Project**				**12**			180	180	360	PA
BA 4-2	**Urban Development 2 and Regional Planning**				**3**			45	45	90	StA
BA 4-3	**Building Operations / Building Law 1**				**6**			90	90	180	K2
BA 4-4	**Building Services 2**				**3**			45	45	90	StA
BA 4-5	**Building Construction 4**				**6**			90	90	180	K2
BA 5-1	**Project: Construction in Existing Buildings**					**12**		120	240	360	PA
BA 5-2	**Design, Visualization**					**6**		90	90	180	StA
BA 5-3	**Building Operations / Building Law 2**					**6**		90	90	180	StA
BA 5-4	**Energy-Efficient Building**					**6**		90	90	180	StA
BA 6-1	**Architecture Workshop**						**6**	3	177	180	StA
BA 6-2	**Individual Profile Studies**						**6**	3	177	180	StA
BA 6-3	**Individual Profile Studies (HAWK plus)**						**6**	60	120	180	indiv.
BA 6-4	**Individual Project – Bachelor Thesis**						**12**	10	350	360	AA
Sum		30	30	30	30	30	30	2304	3096	5400	

Explanation of abbreviations

AA	Final thesis with colloquium
indiv.	Module work according to HAWK-Plus K1
K1	1-hour written exam
K2	2-hour written exam
Ref	Seminar paper
StA	Student research paper with / without colloquium
PA	Project work with colloquium

Allocation to course of study	Module name	Course code	Internal	Last updated
Bachelor of Architecture	**First Project**	**BA 1-1**		08.04.2021
Study semester: 1st semester / Offered in: WS		Credit points: 12 CP		Semester week hours: 12 SWS
Allocation to study specialization: -	Responsible for module: Prof. Dr.- Ing. Till Böttger	Type of teaching, group size, if applicable: Lecture & exercises		
Can also be credited to study program: -		Language of instruction: German		

Requirements according to examination regulations	Recommended prerequisites
Study/examination achievements/ examination types: Project work with colloquium -	If applicable, weighting of the study/examination achievements

Module objectives/desired learning outcomes:

Students are able to
- sharpen spatial perception and learn a conception of space,
- understand spatial relationships both as a whole and in detail,
- describe elementary space-forming elements in a differentiated manner and explain their functionality for the architectural whole,
- transfer and correctly execute predominantly analog spatial representation techniques (e.g. descriptive geometry) to concrete tasks,
- use a concrete design project in systematic steps and formulate an architectural concept,
- confidently communicate the results of their project work to an interested audience and explain them in their contexts,
- apply the basics of presentation or layout.

Contents:

The first project consists of the design of a minimal house as a spatial experiment in solid construction at a specific location.
In four exercises, students are introduced to the basics of spatial perception and design and gradually deepen spatial formation and representation techniques. The "first draft" then bundles this content and has the students formulate an architectural concept. The following contents will be taught:
- Additive and subtractive space formation
- Composition of space-forming elements
- Outdoors and indoors, spatial references
- Ordering functional relationships

The following topics are covered in accompanying lectures
- Technical drawing, conventions of representation in architecture
- Body and space, movement in space, light and shade
- Anthropometrics and scale
- Location, program, materiality and concept formation

Course attendance time (mandatory hours – LVS)		Workload (in hours)			
Prof. Dr.- Ing. Till Böttger	6 LVS	Course attendance time		Home study	
N.N.	6 LVS	Lecture	60 h	Course accompanying and exam preparation	180 h
N.N.	6 LVS	Exercise	120 h		
	-	Other			
Total course attendance time	**18 LVS**	**Total workload**			**360 h**

Optional extra

Literature
is listed in Stud.IP

Allocation to course of study	Module name	Course code	Internal	Last updated
Bachelor of Architecture	**Building and Cultural History**	**BA 1-2**		08.04.2021
Study semester: 1st semester / Offered in: WS		Credit points: 6 CP		Semester week hours: 6 SWS
Allocation to study specialization: -	Responsible for module: Carolin Prinzhorn M.A., V-Prof	Type of teaching, group size, if applicable: Lecture		
Can also be credited to study program: -		Language of instruction: German		

Requirements according to examination regulations	Recommended prerequisites
Study/examination achievements/ examination types Written examination (K2) -	If applicable, weighting of the study/examination achievements

Module objectives/desired learning outcomes:

Students are able to
- name periods of Central European architectural history with their stylistic features in a terminologically correct manner and describe them in their cultural-historical contexts

- classify typical historical buildings in their basic architectural features and define them in their historical and geographical context

Contents:

Knowledge of building history is key and fundamental to evaluating the current built environment.

The lecture offers an overview of Central European architectural history from the Middle Ages to modern times with necessary references back to antiquity. Period classifications, stylistic features, and building history terminology are taught, as well as the relationships between building and utility and between building design and building form.

Course attendance time (mandatory hours – LVS)		Workload (in hours)			
Carolin Prinzhorn M.A., V-Prof	6 LVS	Course attendance time		Home study	
	-	Lecture	90 h	Course accompanying and exam preparation	90 h
	-	Exercise			
	-	Other			
Total course attendance time	**6 LVS**	**Total workload**			**180 h**

Optional extra

Literature
is listed in Stud.IP

Allocation to course of study		Module name	Course code	Internal	Last updated
Bachelor of Architecture		**Building Materials Science 1**	**BA 1-3**		08.04.2021
Study semester	Offered in		Credit points		Semester week hours
1st semester	WS		3 CP		3 SWS
Allocation to study specialization		Responsible for module	Type of teaching, group size, if applicable		
-		Prof. Dr.- Ing. Sabine Iffert-Schier	3V		
Can also be credited to study program			Language of instruction		
-			German		

Requirements according to examination regulations	Recommended prerequisites
Study/examination achievements/ examination types	If applicable, weighting of the study/examination achievements
Written examination (K1) -	

Module objectives/desired learning outcomes:

Introduction to building materials science, terms and essential basics

Upon successful completion of this module, students will have acquired knowledge of:
- essential mechanical, physical, and chemical properties of various structural and architectural materials (e.g. density, strength, deformation behavior, corrosion, fire resistance),
- the production and possible use of the treated building materials

This should enable them to weigh up the advantages and disadvantages of the individual building materials and make the right choice of building material for the building project in question.

Contents:

The following contents are dealt with in the module:
General principles of building materials science (classification of building materials according to their material properties, formation, function, strength and deformation behavior)
Regulations and standards for building materials and their use
Properties of building materials, such as density, strength, deformation behavior, corrosion, fire resistance
Binding agents: production, structure and properties, areas of application
Concrete/reinforced concrete: production, structure and properties, areas of application, fire resistance
Masonry construction: production, structure and properties, areas of application, fire resistance

Course attendance time (mandatory hours – LVS)		Workload (in hours)			
Prof. Dr.- Ing. Sabine Iffert-Schier	4 LVS	Course attendance time		Home study	
	-	Lecture	45 h	Course accompanying and exam preparation	45 h
	-	Exercise			
	-	Other			
Total course attendance time	**4 LVS**	**Total workload**			**90 h**

Optional extra

Literature
is listed in Stud.IP

Allocation to course of study		Module name	Course code	Internal	Last updated
Bachelor of Architecture		**Structural Engineering 1**	**BA 1-4**		08.04.2021
Study semester	Offered in		Credit points		Semester week hours
1st semester	WS		3 CP		3 SWS
Allocation to study specialization		Responsible for module	Type of teaching, group size, if applicable		
-		N.N.	Lecture & exercises		
Can also be credited to study program			Language of instruction		
-			German		

Requirements according to examination regulations	Recommended prerequisites
Study/examination achievements/ examination types	**If applicable, weighting of the study/examination achievements**
Written examination (K2) -	

Module objectives/desired learning outcomes:

Students are able to
- outline the basic tasks of the supporting structure and describe their function for the structure,
- locate and explain the various physical or mechanical forces acting on a structure,
- calculate the loads and forces on simple static systems on the basis of their knowledge of physical or mechanical standards and the properties of building materials.

Contents:

- Basic tasks of the supporting structure (spanning, supporting, bracing and founding)
- Forces and force systems
- Equivalence and balance of forces
- Idealization of the construction to the static system
- Calculation of loads and forces on the structure
- Calculation of support and cutting forces on the beam (bending)
- Determination of cross-section values (section moduli for standard cross-sections)
- Calculation of stresses from section forces and section values
- Approximate design of beam and girder

Course attendance time (mandatory hours – LVS)		Workload (in hours)			
N.N.	3 LVS	Course attendance time		Home study	
	-	Lecture	45 h	Course accompanying and exam preparation	45 h
	-	Exercise			
	-	Other			
Total course attendance time	**3 LVS**	**Total workload**			**90 h**

Optional extra

Literature
is listed in Stud.IP

Allocation to course of study	Module name	Course code	Internal	Last updated
Bachelor of Architecture	**Building Construction 1**	**BA 1-5**		08.04.2021
Study semester: 1st semester / Offered in: WS		Credit points: 6 CP		Semester week hours: 4 SWS
Allocation to study specialization: -	Responsible for module: Tina Wallbaum, V-Prof.	Type of teaching, group size, if applicable: Lectures & exercises		
Can also be credited to study program: -		Language of instruction: German		

Requirements according to examination regulations	Recommended prerequisites
Study/examination achievements/ examination types Project work with colloquium -	If applicable, weighting of the study/examination achievements

Module objectives/desired learning outcomes:

After successful participation in the module courses, students are able to
- understand and apply the technical terms of building construction,
- identify and distinguish between building typologies,
- recognize the interaction of design and shape, derive insights from it and use it for the design process,
- understand the essential modes of operation of the various components of a structure, especially solid construction, and use them accordingly,
- use materials according to their specific material properties,
- distinguish between individual construction methods and take them into account in the planning process,
- understand a construction process,
- grasp basic building physics concepts and modes of action and understand their interactions in the overall building system,
- apply the most important laws, orders, standards and other rules relevant to construction,
- present execution and detail plans at scales relevant to actual practice.

Contents:

Main topic 'solid construction - masonry construction' considering the following points:

- Basic principles of building construction, typology – construction and design
- Basic principles of masonry construction
- Building in the ground: Soil and foundation systems
- Building in the ground: Structural waterproofing
- Solid wall structures: Detailing in the area of foundation, basement, plinth, exterior wall as well as ceiling – and roof connection
- Solid wall structures: Formation of openings
- Natural and artificial stones, mortars and plasters
- Thermal, sound and fire protection in solid construction
- Ceiling structures in solid construction

Course attendance time (mandatory hours – LVS)		Workload (in hours)			
Tina Wallbaum, V-Prof.	4 LVS	Course attendance time		Home study	
Dipl.- Ing. Pia Danner	2 LVS	Lecture	80 h	Course accompanying and exam preparation	90 h
	-	Exercise	10 h		
	-	Other			
Total course attendance time	**6 LVS**	**Total workload**			**180 h**

Optional extra

Literature
is listed in Stud.IP

Allocation to course of study		Module name	Course code	Internal	Last updated
Bachelor of Architecture		**Project: Context City**	**BA 2-1**		08.04.2021
Study semester	Offered in		Credit points		Semester week hours
2nd semester	SS		12 CP		12 SWS
Allocation to study specialization		Responsible for module	Type of teaching, group size, if applicable		
-		Prof. Ines Lüder	Lecture & exercises		
Can also be credited to study program			Language of instruction		
-			German		

Requirements according to examination regulations	Recommended prerequisites
	BA 1-1
Study/examination achievements/ examination types	**If applicable, weighting of the study/examination achievements**
Project work with colloquium -	

Module objectives/desired learning outcomes:

Students are able to
- analyze place in terms of its contextual parameters,
- discuss basic parameters and framework conditions of perception and design according to topological, typological, aesthetic, building construction, building law, building technology, energetic-sustainable, functional aspects and to transfer them to a thematically focused design project,
- develop design concepts in a targeted manner on the basis of careful analyses and the examination of a simple architectural task in an urban context,
- derive and present design ideas within a functionally determined framework,
- present their design concept to an expert audience in a structured and contextualized manner according to content and technical aspects, e.g. in the form of free sketches, figure basic drawings, site plans, floor plans, sections, views, detail drawings as well as models in all scales relevant to practice,
- test and further develop their own creative actions, both individually and as a team, through actively soliciting outside input or exploring their own scope for thought and action as part of the design process.

Contents:

Project with the focus on 'multi-story residential buildings' (buildings of medium height in cross-wall construction) with the basics of urban planning integration and arrangement, taking into account constructive and structural design aspects
The following topics are dealt with in four consecutive steps: Analysis of places/situations with regard to topography, urban development, social aspects, etc.; recognition of spatial structures as well as constructive regularities and their characteristics; development of design concepts and implementation of a simple design program, recognition of material qualities with regard to their specific sensory and constructive properties
The following topics are covered in accompanying lectures: Morphology, principles of form of the urban setting
Building structures, building typology, city building blocks
Housing typology: Cell floor plan, open living, zoning, neutrality of use, changeability, etc.; access systems: Spans, interior and exterior walkway, yard access, etc.
Construction systems: Longitudinal, transverse and cross wall systems, skeleton construction, building depths, etc. Cityscape sketches as a means of urban space analysis

Course attendance time (mandatory hours – LVS)		**Workload** (in hours)			
Prof. Ines Lüder	8 LVS	Course attendance time		Home study	
Prof. Dr.- Ing. Till Böttger	4 LVS	Lecture	90 h	Course accompanying and exam preparation	180 h
Dipl.- Ing. Martina Reichelt	4 LVS	Exercise	90 h		
Dipl.- Ing. Gerald Hannemann	4 LVS	Other			
Total course attendance time	**22LVS**	**Total workload**			**360 h**

Optional extra

Assistant lecturer Dipl.- Ing. Dirk Neumann 4 LVS

Literature

is listed in Stud.IP

Allocation to course of study	Module name	Course code	Internal	Last updated
Bachelor of Architecture	**Building Survey, CAD 2D**	**BA 2-2**		08.04.2021
Study semester: 2nd semester / Offered in: SS		Credit points: 6 CP		Semester week hours: 4 SWS
Allocation to study specialization: -	Responsible for module: Carolin Prinzhorn M.A., V-Prof	Type of teaching, group size, if applicable: Lecture & exercises		
Can also be credited to study program: -		Language of instruction: German		

Requirements according to examination regulations	Recommended prerequisites

Study/examination achievements/ examination types	If applicable, weighting of the study/examination achievements
Project work with colloquium -	

Module objectives/desired learning outcomes:

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- After completing the Building Survey course, students are able to
- describe analog and digital recording and display techniques in construction and architecture and discuss their possible applications,
- abstract from buildings that have already been realized or mentally construct buildings that are yet to be realized and visualize them using analog and digital recording and representation techniques commonly used in architecture,
- convert a construction with analog recording techniques true to deformation in a manual drawing,
- accurately communicate and compile data in a group setting as part of CAD 2D exercises,
- prepare, structure, and digitally and physically complete a CAD plan set 2D for a preliminary design, draft design, and approval planning,
- gain knowledge of analog and digital CAD applications in construction and architecture,
- abstract constructions with reference to the chosen method of representation and coordinate them in a meaningful way in terms of scale.

Contents:

A series of exercises will teach the respective content for construction photography and CAD 2D. During the lectures, the contents of the exercises will be prepared, combined and deepened.

Building survey
First of all, analog drawings are used to record the proportions of complex spatial situations that have already been executed. In a second step, these spatial situations are recorded using various measurement methods and measurement tools. Students work in groups to learn how to make analog and digital technical drawings for a design that has already been executed. A series of precise, dimensioned technical drawings are produced, which are combined to form parts of a construction survey.

CAD 2D
CAD software is used to transfer analog or image-based drawings from a preliminary architectural design or blueprint into vector drawings. A plan set is created that represents the design in 2D drawings through CAD from concept to dimensioned permit drawings.

Course attendance time (mandatory hours – LVS)		**Workload** (in hours)			
Carolin Prinzhorn M.A., V-Prof	6 LVS	Course attendance time		Home study	
Dipl.- Ing. Thomas Kauertz	4 LVS	Lecture	50 h	Course accompanying and exam preparation	90 h
	-	Exercise	40 h		
	-	Other			
Total course attendance time	**10 LVS**	**Total workload**			**180 h**

Optional extra

Literature
is listed in Stud.IP

Allocation to course of study	Module name	Course code	Internal	Last updated
Bachelor of Architecture	**Building Materials Science 2**	**BA 2-3**		08.04.2021
Study semester: 2nd semester / Offered in: SS		Credit points: 3 CP		Semester week hours: 3 SWS
Allocation to study specialization: -	Responsible for module: Prof. Dr.- Ing. Sabine Iffert-Schier	Type of teaching, group size, if applicable: 3V		
Can also be credited to study program: -		Language of instruction: German		

Requirements according to examination regulations	Recommended prerequisites

Study/examination achievements/ examination types	If applicable, weighting of the study/examination achievements
Written examination (K1) -	

Module objectives/desired learning outcomes:

Upon successful completion of this module, students will have acquired knowledge of:
- essential mechanical, physical and chemical properties of various construction and materials in architecture (e.g. density, strength, deformation behavior, corrosion, fire resistance),
- the production and possible use of the treated building materials.

This should enable them to weigh up the advantages and disadvantages of the individual building materials and make the right choice of building material for the building project in question.

Contents:

The following contents are dealt with in the module:
Wood and wood-based materials: Structure and properties, wood protection, fire resistance
Ferrous and non-ferrous metals: Extraction and production, structure and properties, corrosion, fire resistance glass: Manufacture, structure and properties, fasteners, fire resistance
Plastics: Manufacture and properties, areas of application, fire resistance Current building material development

Course attendance time (mandatory hours – LVS)		**Workload** (in hours)			
Prof. Dr.- Ing. Sabine Iffert-Schier	4 LVS	Course attendance time		Home study	
	-	Lecture	45 h	Course accompanying and exam preparation	45 h
	-	Exercise			
	-	Other			
Total course attendance time	**4 LVS**	**Total workload**			**90 h**

Optional extra

Literature
is listed in Stud.IP

Allocation to course of study	Module name	Course code	Internal	Last updated
Bachelor of Architecture	**Structural Engineering 2**	**BA 2-4**		08.04.2021
Study semester: 2nd semester / Offered in: SS		Credit points: 3 CP		Semester week hours: 2 SWS
Allocation to study specialization: -	Responsible for module: Dipl.- Ing. Gerald Hannemann	Type of teaching, group size, if applicable: Lecture & exercise		
Can also be credited to study program: -		Language of instruction: German		

Requirements according to examination regulations	Recommended prerequisites
	Structural engineering 1
Study/examination achievements/ examination types	**If applicable, weighting of the study/examination achievements**
Written examination (K1) -	

Module objectives/desired learning outcomes:

Students are able to
- discuss the load-bearing and deformation behavior of different load-bearing structures in buildings under quasi-static loads in a differentiated manner,
- explain the mode of action of various load-bearing systems, realistically estimate their stresses and assess their load-bearing safety and serviceability,
- produce constructive designs in a multidisciplinary context with a focus on the structure, taking into account detail, form and contextual reference,
- calculate statically indeterminate load-bearing systems in structural designs with the aid of suitable computer programs.

Contents:

- Load-bearing and deformation behavior under normal force, shear force and bending loads
- Load-bearing effect of basic load-bearing systems
- Single-span and multi-span beams
- Frame structures
- Half-timbered building
- Stability and compressive stress
- Building bracing

Course attendance time (mandatory hours – LVS)		**Workload** (in hours)			
Dipl.- Ing. G. Hannemann	3 LVS	Course attendance time		Home study	
	-	Lecture	40 h	Course accompanying and exam preparation	45 h
	-	Exercise	5 h		
	-	Other			
Total course attendance time	**3 LVS**	**Total workload**			90 h

Optional extra

Literature
is listed in Stud.IP

Allocation to course of study	Module name	Course code	Internal	Last updated
Bachelor of Architecture	**Building Construction 2/ Building Physics 1**	**BA 2-5**		08.04.2021
Study semester: 2nd semester / Offered in: SS		Credit points: 6 CP		Semester week hours: 4 SWS
Allocation to study specialization: -	Responsible for module: Prof. Matthias Pätzold	Type of teaching, group size, if applicable: Lecture & exercise		
Can also be credited to study program: -		Language of instruction: German		
Requirements according to examination regulations		Recommended prerequisites: BA 1-5		
Study/examination achievements/ examination types: Written examination (K2) -		If applicable, weighting of the study/examination achievements		

Module objectives/desired learning outcomes:

Students are able to
- classify the various load-bearing and non-load-bearing elements of the building structure, explain the way in which they function in each case and embed them in an overall structural context,
- incorporate specialist standards and legal framework conditions (e.g. building authority approval) into their professional activities,
- recognize the structural, functional and design interrelationships and dependencies in execution and detail planning and use them accordingly in the planning process
- independently apply and implement design rules and coordinate them with other specialists on an interdisciplinary basis,
- independently prepare construction drawings in all scales relevant to execution,
- recognize interrelationships in building physics (summer/winter thermal insulation, moisture protection, sound insulation, etc.) and take them into account in the planning process.

Contents:

Focus on roof structures:

- Sloped roofs, flat roofs: Designs and materials
- Walkable and drivable roofs, green roofs
- Accessories, chimneys, fireplaces, ventilation shafts
- Stairways Basic designs, types of construction
- Basic principles of heat and moisture transport
- Application of the basic principles to the requirements of minimum heat and climate-related moisture protection on the basis of building code requirements

Course attendance time (mandatory hours – LVS)		**Workload** (in hours)			
Prof. Matthias Pätzold	6 LVS	Course attendance time		Home study	
Prof. Dr.- Ing. Meike Deck	4 LVS	Lecture	80 h	Course accompanying and exam preparation	90 h
Dipl.- Ing. Pia Danner	2 LVS	Exercise	10 h		
	-	Other			
Total course attendance time	**12 LVS**	**Total workload**			**180 h**

Optional extra

Literature
is listed in Stud.IP

Allocation to course of study	Module name	Course code	Internal	Last updated
Bachelor of Architecture	**Draft Project**	**BA 3-1**		08.04.2021
Study semester: 3rd semester / Offered in: WS		Credit points: 12 CP		Semester week hours: 12 SWS
Allocation to study specialization: -	Responsible for module: Tina Wallbaum, V-Prof.	Type of teaching, group size, if applicable: Lecture & exercise		
Can also be credited to study program: -		Language of instruction: German		

Requirements according to examination regulations	Recommended prerequisites
	BA 1-1, BA 2-1
Study/examination achievements/ examination types	**If applicable, weighting of the study/examination achievements**
Project work with colloquium -	

Module objectives/desired learning outcomes:

Students are able to
- grasp the complexity of holistic design planning in architecture in its mutual relationship and networking of urban planning, building design, structural design and technical building equipment and break it down into individual subtasks,
- develop and implement solutions systematically and in a structured manner within the framework of the project task,
- independently and pragmatically incorporate innovative design methods and ways of working when working on the practice-oriented assignment,
- coordinate joint action in a group, design information flows, and strive for and put joint solutions into practice,
- critically review their own processes in learning and achieving success,
- assume responsibility for their own development as well as for the design of team structures.

Contents:

- Design of multi-story buildings with mixed uses, such as offices, commercial, public uses or similar, and – integrated – with differentiated residential forms, including parking facilities for stationary vehicles
- Urban planning insertions – e.g. with so-called volumetric sketches – on the basis of existing building law (e.g. legally binding development plan – but also urban development framework plan)
- Analysis of structural systems of multi-storey skeleton construction as well as their use in the design process in different materials, including those combined – accompanied by lectures in the field of structural engineering
- Development of concepts for simple Technical Building Equipment (TBE) – in the above-mentioned building systems – on the basis of basic knowledge transfer by lecture as well as small, practice-oriented exercises
- Development of a fire protection concept based on integrated lectures on preventive fire protection
- Reinforcement and application of the methods of representation and CAD in the architectural design process and as visualization in presentation, building on the methods of representation learned in BA 1-1, BA 2-1, and BA 2-2

Course attendance time (mandatory hours – LVS)		**Workload** (in hours)			
Tina Wallbaum, V-Prof.	6 LVS	Course attendance time		Home study	
Dipl.- Ing. Thomas Kauertz	4 LVS	Lecture	90 h	Course accompanying and exam preparation	180 h
Dipl.- Ing. Pia Danner	4 LVS	Exercise	90 h		
Assistant lecturer	4 LVS	Other			
Total course attendance time	**18 LVS**	**Total workload**			**360 h**

Optional extra

Literature

is listed in Stud.IP

Allocation to course of study	Module name	Course code	Internal	Last updated
Bachelor of Architecture	**Urban Development 1**	**BA 3-2**		08.04.2021
Study semester: 3rd semester / Offered in: WS		Credit points: 6 CP		Semester week hours: 4 SWS
Allocation to study specialization: -	Responsible for module: Prof. Ines Lüder	Type of teaching, group size, if applicable: Lecture & exercise		
Can also be credited to study program: -		Language of instruction: German		
Requirements according to examination regulations		Recommended prerequisites: BA 2-1		
Study/examination achievements/ examination types: Student research paper with colloquium -		If applicable, weighting of the study/examination achievements		

Module objectives/desired learning outcomes:

Students are able to
- recognize and classify the spatial and social relationships between the city and buildings,
- to read and interpret the content of statutory urban land use planning with its planning symbols – e.g. with regard to the type of use and the possible type and manner of development,
- independently develop a wide variety of design strategies and to select these for the processing of specific tasks in a well-founded manner,
- apply two- and three-dimensional representation techniques to urban design tasks,
- to confidently fill different roles within the framework of project teams and to design interdisciplinary cooperation based on the division of labor and communication, e.g. of interdisciplinary actors involved in planning in business games.

Contents:

- Study of diversity of use, the mix of uses and their conflicts in the urban environment against the background of BauNVO (German Building Use Ordinance)
- Learning urban design methods and types of planning in urban and rural contexts, e.g. types of inventory, as-built analysis, and application of urban framework planning topics
- Processing of design tasks in urban planning for existing buildings, studies of insertion alternatives in the context of existing building structures
- Development of urban design concepts for building structures, urban space, space-forming elements, green and open spaces
- Examination of planning law on the basis of the German Building Code (BauGB) and other urban planning regulations in conjunction with building code requirements for urban planning design

Course attendance time (mandatory hours – LVS)		**Workload** (in hours)			
Prof. Ines Lüder	4 LVS	Course attendance time		Home study	
	-	Lecture	30 h	Course accompanying and exam preparation	90 h
	-	Exercise	60 h		
	-	Other			
Total course attendance time	**4 LVS**	**Total workload**			**180 h**

Optional extra

Literature
is listed in Stud.IP

Allocation to course of study	Module name	Course code	Internal	Last updated
Bachelor of Architecture	**Technical Building Equipment 1**	**BA 3-3**		08.04.2021
Study semester: 3rd semester / Offered in: WS		Credit points: 3 CP		Semester week hours: 2 SWS
Allocation to study specialization: -	Responsible for module: Prof. Dr.-Ing. Meike Deck	Type of teaching, group size, if applicable: Lecture		
Can also be credited to study program: -		Language of instruction: German		

Requirements according to examination regulations	Recommended prerequisites
	BA 1-5, BA 2-5
Study/examination achievements/ examination types	**If applicable, weighting of the study/examination achievements**
Written examination (K1) -	

Module objectives/desired learning outcomes:

Students are able to

- sketch/describe essential building services systems and describe how they work,
- draw installation, supply and disposal plans,
- apply energy balancing tools, calculate the total energy demand of the building and estimate the dimensions of the individual components,
- plan energetic concepts in connection with the plan,
- plan energy requirements independently and in compliance with relevant standards, and check their compliance.

Contents:

Lectures teach the basic principles of energy- and resource-saving technical building equipment:

- Heating systems and hot water supply, solar thermal, geothermal energy
- Building services systems
- Installation guide in buildings
- Sanitary engineering, rainwater utilization and wastewater disposal
- Mechanical and natural ventilation concepts

The lecture period includes practice elements in which the students independently calculate or practically apply the characteristic parameters that have been introduced. Students practice the use of relevant standards.

Course attendance time (mandatory hours – LVS)		**Workload** (in hours)			
Prof. Dr.-Ing. Meike Deck	3 LVS	Course attendance time		Home study	
	-	Lecture	20 h	Course accompanying and exam preparation	60 h
	-	Exercise	10 h		
	-	Other			
Total course attendance time	**3 LVS**	**Total workload**			**90 h**

Optional extra

Literature
is listed in Stud.IP

Allocation to course of study		Module name	Course code	Internal	Last updated
Bachelor of Architecture		**Structural Engineering 3**	**BA 3-4**		08.04.2021
Study semester	Offered in		Credit points		Semester week hours
3rd semester	WS		3 CP		2 SWS
Allocation to study specialization		Responsible for module	Type of teaching, group size, if applicable		
-		N.N.	Lecture & exercise		
Can also be credited to study program			Language of instruction		
-			German		

Requirements according to examination regulations	Recommended prerequisites
	BA 1-4, BA 2-4
Study/examination achievements/ examination types	**If applicable, weighting of the study/examination achievements**
Student research paper without colloquium -	

Module objectives/desired learning outcomes:

Students are able to

- apply their competences in structural design with reference to load-bearing structures as used in actual practice,
- integrate structural design into the overall planning process, taking into account normative and procedural requirements, and distinguish it from object planning and technical building equipment,
- calculate simple structural forms affecting the surface with the aid of a computer,
- understand the development and functionality of historical load-bearing structures and use this knowledge to analyze and assess existing structures

Contents:

- Idealization of the construction to the static system
- Applied finite element method for structural analysis
- Basic principles of simple sheet structures (wall panels, ceiling panels, etc.)
- Bar constructions (skeleton buildings, etc.)
- The construction detail
- Development of historical load-bearing structures (solid ceilings, etc.)

Course attendance time (mandatory hours – LVS)		**Workload** (in hours)			
N.N.	3 LVS	Course attendance time		Home study	
	-	Lecture	30 h	Course accompanying and exam preparation	45 h
	-	Exercise	15 h		
	-	Other			
Total course attendance time	**3 LVS**	**Total workload**			**90 h**

Optional extra

Literature

is listed in Stud.IP

Allocation to course of study	Module name	Course code	Internal	Last updated
Bachelor of Architecture	**Building Construction 3 /Building Physics**	**BA 3-5**		08.04.2021
Study semester: 3rd semester / Offered in: WS		Credit points: 6 CP		Semester week hours: 6 SWS
Allocation to study specialization: -	Responsible for module: Prof. Matthias Pätzold	Type of teaching, group size, if applicable: Lecture & exercise		
Can also be credited to study program: -		Language of instruction: German		
Requirements according to examination regulations		Recommended prerequisites: BA 1-5, BA 2-5		
Study/examination achievements/ examination types: Written examination (K2) -		If applicable, weighting of the study/examination achievements		

Module objectives/desired learning outcomes:

Students are able to
- transfer their technical knowledge of building construction and building physics from module BA 2-5 to the special field of skeleton construction,
- evaluate in detail the elements and materials of building structures and how they are produced, their individual physical, ecological, chemical and load-bearing effects and characteristics,
- select the elements and materials of the building construction to be used in specific requirement contexts in a well-founded manner and combine them in an overall solution,
- mathematically prove the suitability of the selected elements and materials,
- recognize relationships between form and design and develop sensible designs on this basis,
- integrate technical and formal aspects in complex structural engineering contexts using a reliable methodology,
- take into account economic and standard specifications from the areas of heat, sound and fire protection when drawing up a building physics planning concept for a building.

Contents:

Description of contents:

Building design:
Finishing components, exterior closures with window and door constructions, glazing, security systems, sun protection systems, screeds and floor coverings, floor constructions, cladding exterior wall as well as interior wall, interior finishing; ceiling claddings, functional ceilings; non-load-bearing interior walls, interior doors; staircase details, timber construction; environmentally friendly construction; aspects of building services engineering
Implementation planning with project reference and inclusion of building services, thematic link with project/ contextual knowledge of building design/building physics

Building physics:
- Basic principles of energy-saving thermal insulation – EnEV
- Basic principles of sound insulation, room acoustics and sound emission control
- Basic principles of fire protection
- Creation of a building physics planning concept for a building with preparation of a homework assignment

Course attendance time (mandatory hours – LVS)		**Workload** (in hours)			
Prof. Matthias Pätzold	4 LVS	Course attendance time		Home study	
Prof. Dr.-Ing. Meike Deck	2 LVS	Lecture	60 h	Course accompanying and exam preparation	90 h
	-	Exercise	30 h		
	-	Other			
Total course attendance time	**6 LVS**	**Total workload**			**180 h**

Optional extra

Literature
is listed in Stud.IP

Allocation to course of study	Module name	Course code	Internal	Last updated
Bachelor of Architecture	**Design Project**	**BA 4-1**		08.04.2021
Study semester: 4th semester / Offered in: SS		Credit points: 12 CP		Semester week hours: 12 SWS
Allocation to study specialization: -	Responsible for module: Tina Wallbaum, V-Prof.	Type of teaching, group size, if applicable: Lecture & exercise		
Can also be credited to study program: -		Language of instruction: German		

Requirements according to examination regulations	Recommended prerequisites
	BA 1-1, BA 2-1, BA 3-1
Study/examination achievements/ examination types	**If applicable, weighting of the study/examination achievements**
Student research paper with colloquium -	

Module objectives/desired learning outcomes:

Students are able to
- independently develop architectural concepts in the form of working drawings (M 1:50) and detailed plans (M 1:20 to 1:1),
- understand design and joining principles and put them into practice,
- transfer the systematics of design to complex task contexts,
- consider and calculate the services of TBE, structural engineering, building physics and fire protection in the context of skeleton construction, lightweight exterior walls and facades in an integrated manner,
- develop complex load-bearing structures for multi-storey buildings,
- determine the dimensions of static systems (wall-type beams, multi-panel plates, bracing cores),
- evaluate constructions and create an integral constructive design,
- understand and adopt the perspective of different disciplines on the constructive project in technical discussions and communicate accordingly in an adapted and confident manner,
- explain the main features of HVAC and electrical systems as well as lighting and materials handling systems,
- plan the technical building equipment with reference to the constructive project in its execution in compliance with the standards from EnEV, EEG, EEWärmeG and KWK.

Contents:

- Elaboration of a planning concept from the project BA 3-1 with the main focus on office buildings/mixed uses/skeleton construction under consideration of urban planning, design, functional, technical, building physics, economic, energetic and ecological requirements up to a solution ready for execution (orientation to service phase 5 HOAI)
- Development and integration of structural design, fire protection, technical building equipment, building physics, each with its own defined tasks

Execution and detailed planning of a defined partial section, different for each student as a predominantly drawn representation of the building with details necessary for execution in the work planning (M 1:50) and detail planning (M 1:20 to M 1:1), independent processing of this partial section (e.g. facade, staircase, underground parking, roof,) for each student as an individual assignment according to examination regulations, no group work

- Structuring of the planning process and proof of the planning progress in weekly supervised sessions
- Integration of contributions from other disciplines involved in the planning process, as well as the student's own contributions to these, which must be demonstrated and documented separately
- Presentation as a colloquium of the integrated content with reference to the architectural concept

Course attendance time (mandatory hours – LVS)		**Workload** (in hours)			
Tina Wallbaum, V-Prof.	6 LVS	Course attendance time		Home study	
Prof. Matthias Pätzold	6 LVS	Lecture	60 h	Course accompanying and exam preparation	180 h
Assistant lecturer Dipl.- Ing. Hartmut Windels	6 LVS	Exercise	120 h		
	-	Other			
Total course attendance time	**18 LVS**	**Total workload**			**360 h**

Optional extra

Literature
is listed in Stud.IP

Allocation to course of study	Module name	Course code	Internal	Last updated
Bachelor of Architecture	**Urban Development 2 and Regional Planning**	**BA 4-2**		08.04.2021
Study semester: 4th semester / Offered in: SS		Credit points: 3 CP		Semester week hours: 2 SWS
Allocation to study specialization: -	Responsible for module: Prof. Ines Lüder	Type of teaching, group size, if applicable: Lecture & exercise		
Can also be credited to study program: -		Language of instruction: German		
Requirements according to examination regulations		Recommended prerequisites: BA 3-1, BA 3-2		
Study/examination achievements/ examination types: Student research paper with colloquium -		If applicable, weighting of the study/examination achievements		

Module objectives/desired learning outcomes:

Students are able to
- recognize the social, economic, ecological and spatial dimensions of built structures in urban and rural environments in detail and as they relate to one another,
- identify and analyze architectural and structural characteristics of buildings in the regional context,
- systematically and justifiably develop planning and design strategies in the context of built-up areas and local districts,
- professionally and appropriately incorporate the legal and technical determinants – e.g. §34 BauGB – in complex planning processes,
- understand and assess the roles of different parties involved in planning and construction (authorities, citizens, specialist engineers, etc.) as well as their factors influencing the planning and construction process,
- shape r the joint goal-oriented and communicative interaction and show appreciation within the framework of group work in project teams,
- apply the legal and technical determinants and rules in complex planning processes in a practice-oriented manner.

Contents:

- Study of the diversity of uses, the mixture of uses, their conflicts (e.g. demographic development) in urban and rural settlement areas (e.g. depopulation of rural areas) against the background of current developments
- Learning urban design methods and types of planning in urban and rural contexts, e.g. types of inventory, as-built analysis, and application of urban framework planning topics with reference to the regional particularities of building structures
- Working on design tasks in existing urban development, also in rural areas, studies and design for insertions ('implants') in the context of existing settlement and characteristic development structures
- Planning concepts for the characteristics of building structure, settlement area, typical local elements, green and open spaces with the peculiarity of their significance in the region
- Examination of planning law on the basis of the BauGB, in particular §34 BauGB, i.e. without building law and other urban planning rules in conjunction with building code requirements for urban planning and building design

Course attendance time (mandatory hours – LVS)		**Workload** (in hours)			
Prof. Ines Lüder	4 LVS	Course attendance time		Home study	
	-	Lecture	15 h	Course accompanying and exam preparation	45 h
	-	Exercise	30 h		
	-	Other			
Total course attendance time	**4 LVS**	**Total workload**			**90 h**

Optional extra

Literature
is listed in Stud.IP

Allocation to course of study	Module name	Course code	Internal	Last updated
Bachelor of Architecture	**Building Operations / Building Law 1**	**BA 4-3**		08.04.2021
Study semester: 4th semester; Offered in: SS		Credit points: 6 CP		Semester week hours: 4 SWS
Allocation to study specialization: -	Responsible for module: Prof. Dr. Ing. Mario Hanusrichter	Type of teaching, group size, if applicable: Lecture & exercise		
Can also be credited to study program: -		Language of instruction: German		

Requirements according to examination regulations	Recommended prerequisites

Study/examination achievements/ examination types	If applicable, weighting of the study/examination achievements
Written examination (K2) Seminar paper	Written examination (90%), seminar paper (10%)

Module objectives/desired learning outcomes:

Introduction to the construction and real estate market: The course is designed to provide an overview of the special features of the construction and real estate market. Students acquire basic knowledge of the dimension of the market, its economic significance and the forms of project management. The market participants are presented in their various functions; how these functions interact for the construction and real estate market is made clear.

Private construction law: Students are taught the basic principles of construction contract law that are necessary for them to understand project execution.

Public construction law: Students gain knowledge of public building law (urban land use planning, building code law) as well as the assessment of the approval of building projects. In addition, students are taught the basic principles for applying for building permits with the required building documents.

Contents:

Introduction to the construction and real estate market: Basic principles and terminology; the roles of the parties involved; models of project execution; forms of contractor assignment; service profiles of typical engineering and architectural activities; cost elements of construction; freelance activities in general; project structuring and rough scheduling

Private construction law (construction contract law): Architectural law according to BGB (German Civil Code); significance of HOAI; conclusion of a construction contract; construction contract as VOB or BGB contract; general terms and conditions; warranty according to VOB Part B and BGB; liability, reservations, obstruction, termination; overview of VOB Part C with regard to the systematics of general technical contract conditions

Public construction law: Execution of the building permit procedure; building neighbor law; urban land use planning according to BauGB, BauNVO and PlanVZ; land use and urban land use plans; distance areas; fire protection regulations; traffic safety; building projects that do not require a permit and those that do; application and building documentation regulations

Course attendance time (mandatory hours – LVS)		**Workload** (in hours)			
Prof. Dr. Ing. Mario Hanusrichter	4 LVS	Course attendance time		Home study	
Assistant lecturer Dipl.- Ing. Christian Zumwinkel	2 LVS	Lecture	60 h	Course accompanying and exam preparation	90 h
	-	Exercise	30 h		
	-	Other			
Total course attendance time	**6 LVS**	**Total workload**			**180 h**

Optional extra

Literature

is listed in Stud.IP

Allocation to course of study		Module name	Course code	Internal	Last updated
Bachelor of Architecture		**Technical Building Equipment 2**	**BA 4-4**		08.04.2021
Study semester	Offered in		Credit points		Semester week hours
4th semester	SS		3 CP		2 SWS
Allocation to study specialization		Responsible for module	Type of teaching, group size, if applicable		
-		Prof. Dr.-Ing. Meike Deck	Lecture		
Can also be credited to study program			Language of instruction		
-			German		

Requirements according to examination regulations	Recommended prerequisites
	BA 1-5, BA 2-5, BA 3-5, BA 3-3
Study/examination achievements/ examination types	**If applicable, weighting of the study/examination achievements**
Student research paper without colloquium -	

Module objectives/desired learning outcomes:

Students

- know the essential technical building systems as well as their evaluation with regard to energy and resource conservation,
- understand the connection between technical systems and the building; independently plan an overall concept,
- are able to dimension and draw the essential components of the technical building equipment and the associated installation, supply and disposal lines,
- use the relevant standards and guidelines,
- are able to summarize their results in a meaningful final report and communicate them to third parties,
- are able to check compliance with legal requirements on the basis of their calculations and recommend funding measures.

Contents:

In lectures, the building services components of heating and ventilation technology and drinking water supply are explained holistically in the building context and supplemented by the aspects of lighting and electrical engineering and materials handling technology. The focus is on how to execute the planning of the individual components.
An essential component is also the in-depth use of calculation tools for energy balancing and the preparation of a parameter study for decision-making.
Compliance with legal requirements within the framework of the Energy Saving Ordinance (ENEV), the Renewable Energies Heat Act (EEWärmeG) and the Renewable Energies Act (EEG)

The lecture period includes practice elements in which the students independently calculate or practically apply the characteristic parameters that have been introduced. A more in-depth look is taken at how to handle the relevant standards.

Course attendance time (mandatory hours – LVS)		**Workload** (in hours)			
Prof. Dr.-Ing. Meike Deck	3 LVS	Course attendance time		Home study	
Dipl.- Ing. Pia Danner	3 LVS	Lecture	30 h	Course accompanying and exam preparation	45 h
	-	Exercise	15 h		
	-	Other			
Total course attendance time	**6 LVS**	**Total workload**			**90 h**

Optional extra

Literature
is listed in Stud.IP

Allocation to course of study	Module name	Course code	Internal	Last updated
Bachelor of Architecture	**Building Construction 4**	**BA 4-5**		08.04.2021
Study semester: 4th semester / Offered in: SS		Credit points: 6 CP		Semester week hours: 6 SWS
Allocation to study specialization: -	Responsible for module: Prof. Dr.- Ing. Alfred Breukelman	Type of teaching, group size, if applicable: Lecture with exercise		
Can also be credited to study program: -		Language of instruction: German		

Requirements according to examination regulations	Recommended prerequisites
	BA 1-5, BA 2-5, BA 3-5
Study/examination achievements/ examination types	**If applicable, weighting of the study/examination achievements**
Written examination (K2) -	

Module objectives/desired learning outcomes:

Students are able to

- describe and classify the importance of the building enclosure in the overall context of the building design, in particular with regard to the aspects of functionality, comfort, energy efficiency and economy,
- transfer their knowledge of materials, elements and systems of building construction to the main topic of "skeleton construction – building enclosure",

- sketch and explain construction systems of timber construction,
- differentiate between and describe the joining, construction and assembly principles of facade construction,
- analyze different constructions of the facade construction as well as evaluate system solutions from a holistic point of view,
- present and categorize climate control tasks of the building enclosure, in particular sun protection, glare protection, heating and ventilation as well as daylight supply,
- independently implement project-specific requirements and objectives in an execution and detailed design, based on a case study.

Contents:

Description of contents:

- Building enclosures: functional, constructive, design requirements for facade planning
- Load-bearing systems in skeleton construction Material procurement: Reinforced concrete, steel and wood
- Wood construction systems: Timber skeleton construction, timber frame construction, solid timber construction
- Building enclosures in timber construction
- Curtain-wall facing with air space, material procurement: Metal, glass, wood, fiber cement, etc.
- Glass structures, overhead glazing
- Curtain walls, stick-system facades, element facades
- Sun protection systems and facade porches
- Special solutions: Facades for energy generation
- Special solutions: Multi-layer facades, climate facades
- Examples of projects

Course attendance time (mandatory hours – LVS)		**Workload** (in hours)			
Prof. Dr.-Ing. Alfred Breukelman	5 LVS	Course attendance time		Home study	
	-	Lecture	60 h	Course accompanying and exam preparation	90 h
	-	Exercise	30 h		
	-	Other			
Total course attendance time	**5 LVS**	**Total workload**			**180 h**

Optional extra

Literature

is listed in Stud.IP

Allocation to course of study		Module name	Course code	Internal	Last updated
Bachelor of Architecture		**Project: Construction in Existing Buildings**	**BA 5-1**		08.04.2021
Study semester	Offered in		Credit points		Semester week hours
5th semester	WS		12 CP		12 SWS
Allocation to study specialization		Responsible for module	Type of teaching, group size, if applicable		
-		Prof. Dr.-Ing. Birgit Franz	Lecture & exercise		
Can also be credited to study program			Language of instruction		
-			German		

Requirements according to examination regulations	Recommended prerequisites
	BA 1-1, BA 2-1, BA 3-1, BA 4-1
Study/examination achievements/ examination types	**If applicable, weighting of the study/examination achievements**
Student research paper with colloquium -	Student research paper 80%, colloquium 20%

Module objectives/desired learning outcomes:

Students are able to
- examine examples of existing buildings and specify criteria for their evaluation,
- derive from the results of preliminary investigations conclusions that are compatible with the structure in terms of construction, design, construction management and financing,
- apply different methods of preliminary investigation to a practical case study, compare appropriate options for action and select a comprehensive approach to a solution on a well-founded basis,
- apply their methodical and analytical skills to new planning tasks in architecture, urban planning, civil engineering, monument preservation and restoration,
- treat an old building appropriately in terms of design, construction, and preservation of historical monuments, and prepare it for further use with affordable means,
- coordinate professional activities in teams based on the division of labor, design information flows and bring about joint solutions for concrete tasks,
- compile their results in a team and present them in a colloquium.

Contents:

The task to be worked on serves to provide students with a methodical introduction to the importance of preliminary investigations, to acquaint them with suitable construction survey, investigation and evaluation methods and make them able to draw conclusions that are compatible with the structure (in terms of construction, design, financing and building operations) and able to implement these in the best possible way during planning and on the construction site. The coexistence of "old" and "new" is addressed, as is the canon of possibilities for sustainable energy efficiency retrofitting.
The persistent myth that "historical monuments and old buildings are always more expensive than new buildings" is to be countered by exemplary work on concrete projects and discussed with the help of suitable instruments.

Course attendance time (mandatory hours – LVS)		**Workload** (in hours)			
Prof. Dr.-Ing. Birgit Franz	6 LVS	Course attendance time		Home study	
N.N.	4 LVS	Lecture	25 h	Course accompanying and exam preparation	180 h
N.N.	4 LVS	Exercise	25 h		
Assistant lecturer	4 LVS	Other	70 h		
Total course attendance time	**18 LVS**	**Total workload**			**360 h**

Optional extra

Literature
is listed in Stud.IP

Allocation to course of study	Module name	Course code	Internal	Last updated
Bachelor of Architecture	**Design, Visualization**	**BA 5-2**		08.04.2021
Study semester: 5th semester / Offered in: WS		Credit points: 6 CP		Semester week hours: 4 SWS
Allocation to study specialization: -	Responsible for module: Prof. Dr.-Ing. Till Böttger	Type of teaching, group size, if applicable: Lecture & exercise		
Can also be credited to study program: -		Language of instruction: German		
Requirements according to examination regulations		Recommended prerequisites: BA 1-1, BA 2-1, BA 2-2		
Study/examination achievements/ examination types: Student research paper with colloquium -		If applicable, weighting of the study/examination achievements		

Module objectives/desired learning outcomes:

Students are able to

- name and describe the core elements of visual representation and presentation for architects – images / renderings as an anticipation of reality and architectural photography as an indirect reflection of reality,
- interpret, abstract, and compose images of specific spatial situations,
- use digital representation techniques for the presentation of architecture,
- visualize space-creating constructions in the complex context of material, color and light and to represent them in 3D,
- combine analog and digital image processing techniques in a meaningful way,
- design, coordinate and demonstrate various types of presentations in different presentation formats for specific target groups.

Contents:

A series of exercises teaches students the respective contents for presentation and visualization. During the lectures, the contents of the exercises will be prepared, combined and deepened.

CAD software is used to transfer analog or image-based drawings or digital 2D drawings from a preliminary architectural design or blueprint into 3D drawings. These representations are materialized and showcased with light. Finally, a layout is developed and presented for various types of presentations.

The course is accompanied by exercises to give students practice in the use of images and text to create layout templates for professional presentation folders, expert reports, exposés, digital lecture presentations, publications in press and trade journals, documents for participation in competitions, awards and application procedures with a view to obtaining a Bachelor's degree.

Course attendance time (mandatory hours – LVS)		**Workload** (in hours)			
Prof. Dr.-Ing. Till Böttger	2 LVS	Course attendance time		Home study	
Assistant lecturer	4 LVS	Lecture	30 h	Course accompanying and exam preparation	90 h
	-	Exercise	60 h		
	-	Other			
Total course attendance time	**6 LVS**	**Total workload**			**180 h**

Optional extra

Literature

is listed in Stud.IP

Allocation to course of study		Module name	Course code	Internal	Last updated
Bachelor of Architecture		**Building Operations / Building Law 2**	**BA 5-3**		08.04.2021
Study semester	Offered in		Credit points		Semester week hours
5th semester	WS		6 CP		6 SWS
Allocation to study specialization		Responsible for module	Type of teaching, group size, if applicable		
-		Prof.Dr.-Ing.Mario Hanusrichter	Lecture & exercise		
Can also be credited to study program			Language of instruction		
-			German		

Requirements according to examination regulations	Recommended prerequisites
Study/examination achievements/ examination types	If applicable, weighting of the study/examination achievements
Student research paper without colloquium -	

Module objectives/desired learning outcomes:

Basic principles of tendering, awarding contracts and invoicing (AVA) of design and construction services: Students acquire knowledge of how to prepare explicit and exhaustive bidding documents. In addition, teaching also covers the basic principles of how contracts are awarded (national and Europe-wide) and the regulations of the legal protection of public procurement. Students are also taught basic accounting skills.

After that, students complete a practical exercise to learn how to apply their theoretical knowledge.

Contents:

Basic principles of tendering, awarding contracts and invoicing (AVA) of design and construction services: Public procurement law; implementation of planning results in the service description; the procedure for awarding contracts; evaluation of bids; invoicing of services, verifiability of invoicing documents

Practical exercise: Calculating quantities and compiling a contract award document, drafting contracts and awarding construction contracts, preparing construction scheduling and setting up the construction site, outlook on project realization (consideration of aspects of safety engineering as well as object supervision – construction supervision and documentation)

Course attendance time (mandatory hours – LVS)		**Workload** (in hours)			
Prof.Dr.-Ing. Mario Hanusrichter	4 LVS	Course attendance time		Home study	
Assistant lecturer	2 LVS	Lecture	20 h	Course accompanying and exam preparation	90 h
	-	Exercise	70 h		
	-	Other			
Total course attendance time	**6 LVS**	**Total workload**			**180 h**

Optional extra

Literature
is listed in Stud.IP

Allocation to course of study	Module name	Course code	Internal	Last updated
Bachelor of Architecture	**Energy-Efficient Building**	**BA 5-4**		08.04.2021
Study semester: 5th semester / Offered in: WS		Credit points: 6 CP		Semester week hours: 4 SWS
Allocation to study specialization: -	Responsible for module: Prof. Dr.-Ing. Alfred Breukelman	Type of teaching, group size, if applicable: Lecture with exercise		
Can also be credited to study program: -		Language of instruction: German		

Requirements according to examination regulations	Recommended prerequisites
	BA 1-5, BA 2-5, BA 3-5, BA 4-4, BA 4-5
Study/examination achievements/ examination types	**If applicable, weighting of the study/examination achievements**
Student research paper without colloquium -	

Module objectives/desired learning outcomes:

Students are able to
- classify and evaluate energy consumption in buildings in the context of nature, environment and sustainability,
- analyze materials, designs and building technology in a differentiated manner according to the criteria of energy efficiency and assess building concepts holistically according to these criteria,
- apply energy-efficient design and construction in the overall context of building design,
- recognize the importance of energy efficiency standards and energy balancing in building design,
- differentiate between and explain the options for passive and active use of regenerative energies,
- apply the methods and tools within the framework of a planning and construction process optimized according to energy efficiency criteria
- develop and put project-specific objectives and solution strategies into practice according to the criteria of energy efficiency within the framework of a project.

Contents:

- Climate, energy, sustainability
- Energy needs in the building life cycle
- Development of environmentally and climate-compatible construction methods
- Legal regulations and requirements: EnEV, EEWärmeG, EEG, EU Building Directive, etc.
- Energy balance in buildings
- Basic principles of energy balancing: Balancing area, balancing criteria and balancing limits
- Energy needs and balancing according to EnEV for residential and non-residential buildings
- Building energy standards: Passive house, KfW efficiency house, zero, plus energy house
- Energy-optimized building planning Building structure, building enclosure, building services Buildings as energy systems
- Passive and active planning strategies for reducing energy needs and optimizing energy supply
- Energy efficiency in existing buildings
- Environmentally compatible building materials and structures
- Examples of buildings in detail

Course attendance time (mandatory hours – LVS)		**Workload** (in hours)			
Prof. Dr.-Ing. Alfred Breukelman	6 LVS	Course attendance time		Home study	
	-	Lecture	45 h	Course accompanying and exam preparation	90 h
	-	Exercise	45 h		
	-	Other			
Total course attendance time	**6 LVS**	**Total workload**			**180 h**

Optional extra

Literature
is listed in Stud.IP

Allocation to course of study		Module name	Course code	Internal	Last updated
Bachelor of Architecture		**Architecture Workshop**	**BA 6-1**		08.04.2021
Study semester	Offered in		Credit points		Semester week hours
5th semester	WS + SS		6 CP		n/a
Allocation to study specialization		Responsible for module	Type of teaching, group size, if applicable		
-		Entire teaching staff	Various		
Can also be credited to study program			Language of instruction		
-			German		

Requirements according to examination regulations	Recommended prerequisites
Study/examination achievements/ examination types	**If applicable, weighting of the study/examination achievements**
Student research paper without colloquium -	

Module objectives/desired learning outcomes:

Field trips:
- Students independently acquire new specialist content on the history of the country, architecture and urban development of the field-trip destination.
- They integrate their knowledge of the cultural history of the excursion destination into the context of the respective European or non-European cultural sphere with scientific justification.

Workshops:
- Students argue with confidence and scientific reasoning in discussions with experts.
- They design and guide communicative and action-related interaction in a group, showing respect for other points of view.
- If necessary, they analyze conflicts that may arise in the group and select and implement appropriate strategies to resolve the conflict.

Out of College:
- Students design and review learning and success processes in a targeted manner, also under conditions that have changed
- They critically reflect on their own ways of thinking and behaving and adapt them if necessary; change perspectives in a goal-oriented way and review them.
- They take responsibility for their own professional and personal development.

Contents:

Field trips, workshops, and out-of-college modules with a variety of professional focuses:
Field trips
Professional field trips offered by the study program in Germany and abroad of at least 5 or 10 days (corresponding to 3 or 6 credit points) with seminar preparation and follow-up, i.e. documentation of the professional approach and the academic outcome
Workshops
Architectural workshops in Germany and abroad, impromptu design events of at least 5 or 10 days (corresponding to 3 or 6 credit points) on selected, current topics in the field of architecture
Out of College
Modules that can be completed at other universities (3 or 6 credit points)
After prior consultation with the module representative or the program coordinator, it is possible for students to combine two modules with 3 credit points each. It is not possible to reimburse costs, e.g. for excursions and workshops.

Course attendance time (mandatory hours – LVS)		**Workload** (in hours)			
Entire teaching staff	0.1 LVS	Course attendance time		Home study	
	-	Lecture		Course accompanying and exam preparation	177 h
	-	Exercise			
	-	Other	3 h		
Total course attendance time	**0.1 LVS**	**Total workload**			**180 h**

Optional extra

Literature
is listed in Stud.IP

Allocation to course of study	Module name	Course code	Internal	Last updated
Bachelor of Architecture	**IPS Architecture**	**BA 6-2**		08.04.2021
Study semester: 6th semester / Offered in: SS		Credit points: 6 CP		Semester week hours: n/a
Allocation to study specialization: -	Responsible for module: Entire teaching staff	Type of teaching, group size, if applicable		
Can also be credited to study program: -		Language of instruction: German		

Requirements according to examination regulations	Recommended prerequisites
Study/examination achievements/ examination types: Student research paper without colloquium -	If applicable, weighting of the study/examination achievements

Module objectives/desired learning outcomes:

Students are able to

- motivate themselves,
- independently explore new subject-specific content.

Contents:

In this module, students, with the support of a lecturer, have the opportunity to delve into a topic of their own choice.
It is also possible, in consultation with the first examiner, to do more in-depth research for your own Bachelor's thesis.

Course attendance time (mandatory hours – LVS)		**Workload** (in hours)			
Entire teaching staff	0.1 LVS	Course attendance time		Home study	
	-	Lecture		Course accompanying and exam preparation	177 h
	-	Exercise			
	-	Other	3 h		
Total course attendance time	0.1 LVS	**Total workload**			180 h

Optional extra

Literature

is listed in Stud.IP

Allocation to course of study		Module name	Course code	Internal	Last updated
Bachelor of Architecture		**IPS HAWK plus**	**BA 6-3**		08.04.2021
Study semester	Offered in		Credit points		Semester week hours
6th semester	SS		6 CP		n/a
Allocation to study specialization		Responsible for module	Type of teaching, group size, if applicable		
-		HAWK plus	Course-dependent		
Can also be credited to study program			Language of instruction		
-			German		

Requirements according to examination regulations	Recommended prerequisites
Study/examination achievements/ examination types	**If applicable, weighting of the study/examination achievements**
Course-dependent -	

Module objectives/desired learning outcomes:

Areas of competence of the Individual Profile Studies (IPS)
- Thinking and acting like an entrepreneur
- Leadership skills
- Communication and individual skills
- Social and societal skills
- Media skills
- Interdisciplinary specialized knowledge
- Language competence

Contents:

Depending on the HAWK plus module selected

Course attendance time (mandatory hours – LVS)		**Workload** (in hours)			
HAWK plus	6 LVS	Course attendance time		Home study	
	-	Lecture		Course accompanying and exam preparation	120 h
	-	Exercise			
	-	Other	60 h		
Total course attendance time	**6**	**Total workload**			**180 h**

Optional extra

Literature

is listed in Stud.IP

Allocation to course of study	Module name	Course code	Internal	Last updated
Bachelor of Architecture	**Bachelor's Thesis**	**BA 6-4**		08.04.2021
Study semester: 6th semester / Offered in: WS + SS		Credit points: 12 CP		Semester week hours: n/a
Allocation to study specialization: -	Responsible for module: Entire teaching staff	Type of teaching, group size, if applicable		
Can also be credited to study program: -		Language of instruction: German		

Requirements according to examination regulations	Recommended prerequisites
According to examination regulations	
Study/examination achievements/ examination types	**If applicable, weighting of the study/examination achievements**
Final thesis with colloquium -	

Module objectives/desired learning outcomes:

Students
- are able to classify a clearly defined problem from architecture in a research or application-related context using the specialist knowledge acquired in the course of study in state-of-the-art research and professional practice and systematically investigate it with the aid of subject-specific (research) methods,
- are able to independently develop their own research questions, form hypotheses and derive suitable, creative solutions to complex questions, even in a new or unfamiliar professional context, and critically evaluate options for action,
- critically reflect on their professional actions with regard to their own social and ethical responsibility,
- are able to present scientific findings and results in a comprehensive, structured and critically questioning manner,
- are able to present complex issues in architecture in a confident and understandable way, both to an audience outside the field and to an audience with the corresponding professional expertise.

Contents:

- Independent preparation of a Bachelor's thesis in accordance with the examination regulations as part of the final examination of the course of study
- Independent organization and development of the work flow
- Doing comprehensive literature research on the respective topic with classification and evaluation
- Development of drafts from a subject area in the field of architecture
- Work on topics related to building construction
- Work on topics related to building operations
- Regular subject-specific discussions with examiners while working on the thesis

Course attendance time (mandatory hours – LVS)		**Workload** (in hours)			
First examiner	0.3 LVS	Course attendance time		Home study	
Second examiner	0.1 LVS	Lecture		Course accompanying and exam preparation	350 h
	-	Exercise			
	-	Other	10 h		
Total course attendance time	**0.4 LVS**	**Total workload**			**360 h**

Optional extra

Literature

is listed in Stud.IP

September, 2021

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