Design 1

Responsible for the module	**Bargholz**	Module code:	**BA 1.1**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**1st semester**
Credit points:	**8 CP**	Number of participants:	**28**
Weekly semester hours:	**6 SWS**	Language of instruction:	**German**
Examination:	**Portfolio/ Design**	Type:	**Mandatory module**

Student working hours:	**132 hours of self-study, 68 hours of lectures and supervision of exercises**
Course form	**Lectures, supervised exercises and free work**

Competence goals:

After students have completed the module, they can:

- express creative ideas in simple design concepts
- deal with basic elements of architecture (surface, body, space)
- recognize and apply aesthetic orders as well as composition and design principles
- use representation techniques such as sketches, drawings and models as spatial media appropriately and in a way that leads to the solution of design tasks.
- two- and three-dimensional compositions with reference to aesthetic and structural orders
- independently expand their visual habits and spatial imagination

Content description:

In a series of smaller exercises, surface, body and space are addressed. These are abstract compositions and not concrete building tasks. Materials, formal and topological relationships form the basis. Principles such as sequence, geometry, contrast, rhythm, similarity, etc. are recognized and practiced as elements of design. The compositions are realized as objects in various materials and are also expressed in drawings and sketches. Different materials sensitize the perception to different materialities and the possibilities of expression associated with them.

The sculptural-spatial design combines design and construction against the background of form analysis and other means of understanding and clearly representing spatial ideas.
The exercises are in dialogue with the Representation 1 module and together form a propaedeutic unit. The solutions to the tasks are developed in constant dialogue with the teachers and accompanied by lectures. The results are presented and justified by the respective students in the group plenary. This presentation is part of the assignments.

Design 2

Responsible for the module:	**Oevermann**	Module code:	**BA 1.2**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**2nd semester**
Credit points:	**8 CP**	Number of participants:	**28**
Weekly semester hours:	**6 SWS**	Language of instruction:	**German/English**
Examination:	**Portfolio/ Design**	Type:	**Mandatory module**

Student working hours:	**132 hours of self-study, 68 hours of lectures and supervision of exercises**
Course form:	**Lectures, supervised exercises and free work**

Competence goals:

After completing the module, students can:

- analyse and understand an urban situation or an existing location as a context for your own design
- develop architectural concepts for the respective task in an urban context
- bring simple spatial programs into functionally meaningful contexts
- give shape to functional, structural and contextual/design requirements using the basic elements of architecture learned in the first semester
- organize various simple requirements into an overall solution with the help of pictorial ideas (metaphors, analogies, etc.) and apply design principles in the architectural spatial context
- apply various spatial representation methods to design and layout
- Use representation techniques such as sketches, 2D and simple 3D representations and models as media of spatial representation in the context of the task.

Content description:

Several small design tasks are set, which do not initially involve building designs to be designed, but which develop gradually towards the end of the semester. Function and meaning are progressively introduced. Basic design elements - such as surface, form and space to transform into structural components like wall, ceiling, floor into designed building bodies, into interior, exterior, intermediate space, etc. Both additive and subtractive approaches are tried out in the design process. The exercises, which have a reduced level of complexity, challenge playful, pictorial design, as they are still largely free of meaning and thus of conventional influences. Solutions are to be invented and developed less through imitation and more through mental images (metaphors, analogies, etc.). The solutions to the tasks are developed in sketches and drawings, but then mainly realized in models, but sketches and drawings are also practiced. The architectural project is given a connection to an environment that primarily consists of a real (or fictitious) urban context.
The tasks of the Representation 2 module are closely integrated to the individual exercise steps of Design 2 and complement these about the acquisition of necessary representation skills.
The students' work steps are continuously accompanied by lectures and are constantly developed further in discussions with the teachers. The results are regularly presented and justified in the group plenary.

Design 3

Responsible for the module	**Prof. Sternkopf**	Module code:	**BA 1.3**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**3rd semester**
Credit points:	**8 CP**	Number of participants:	**28**
Weekly semester hours:	**6 SWS**	Language of instruction:	**German**
Examination:	**Portfolio / Design**	Type:	**Mandatory module**

Student working hours:	**132 hours of self-study, 68 hours of lectures and supervision of exercises**
Course form	**Lectures, supervised exercises and free work**

Competence goals:

After students have completed the module, they can:

- solve a given, manageable design task, located in the area of housing with a simple, contextual reference (landscape, urban)
- identify alternative solutions,
- combine different design parameters into a meaningful whole (synthesis)
- apply representation techniques such as model, drawing, sketch, CAD, and text in the context of the task.

Content description:

A formulated building task in the area of residential construction is the focus of the module. In addition to the plot of land, a spatial program is also specified. Contextual problems must be solved, as well as functional and spatial aspects of the building. The design is created in dialogue with the exterior and interior spaces. The plots of land are chosen so that they represent special places.

In addition to task-related lectures and possible short assignments and presentations, individual corrections are planned, which are supplemented by colloquiums at regular intervals. The students present their results in a final public event. This presentation is part of the task and should be prepared accordingly.

The supplementary lectures on building theory convey the theoretical basics of living. The parallel module Representation and Design III (6.3) corresponds to Design III and thus enables students to produce CAD-based drawings as early as the third semester. In addition to the digital drawings, hand drawings, sketches and models are required, which should represent the design in a complementary way.

Design 4

Responsible for the module	**Remuss**	Module code:	**BA 1.4**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**4th semester**
Credit points:	**9 CP**	Number of participants:	**28**
Weekly semester hours:	**6 SWS**	Language of instruction:	**German**
Examination:	**Portfolio/ Design**	Type:	**Mandatory module**

Student working hours:	157 hours of self-study, 68 hours of lectures and supervision of exercises
Course form:	Lectures, supervised exercises and free work

Competence goals:

After students have completed the module, they can:

- solve a given design task, from the field of public buildings, housing or a combination of both in a complex context
- develop and present alternative concepts / solutions
- evaluate different design parameters and combine them into a meaningful whole (synthesis)
- deal with a complex spatial program
- differentiate and classify building typologies
- apply representation techniques such as model, drawing, sketch, CAD, and text in the context of the task.

Content description:

A building task is formulated both in terms of the location and the allocation of use. The design seeks a solution in the field of tension between type and topos, between inside and outside, between use and context. Contextual problems of the specific location must therefore be solved just as much as functional and spatial aspects of the building.

A plot of land with increased urban development/landscape demands and a complex spatial program corresponding to the usage requirements of the task is specified.

In addition to task-related lectures, correction discussions are planned, which are supplemented by colloquiums at regular intervals. The students present their results in a final public event. This presentation is part of the task and should be prepared accordingly.

The supplementary lectures on building theory provide theoretical foundations for various building typologies from the socio-cultural/public sector. The parallel module Representation and Design VI (6.3) corresponds to Design VI and enables students to produce CAD-based or generated drawings and visualizations. In addition to the digital drawings, hand drawings, sketches and models in different scales are required, which should represent the design from the concept to the required level of detail/elaboration in a complementary manner.

Concepts and Methods

Responsible for the module:	**Prof. Dr. Beckmann**	Module code:	**BA 1.5**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**6th semester**
Credit points:	**4 CP**	Number of participants:	**28**
Weekly semester hours:	**2 SWS**	Language of instruction:	**German**
Examination:	**Portfolio/Design**	Type:	**Mandatory module**

Student working hours:	**77 hours of self-study, 23 hours of lectures and supervision of exercises**
Course form:	**Lectures, supervised exercises and free work**

Competence goals:

After students have completed the module, they can:

- overview and understand the basic content and methods of the current architectural discourse
- understand central questions of contemporary practice through exemplary analyses of buildings and urban spaces
- derive and critically question connections between one's own design practice and trends in contemporary architecture
- anchor a complex design project in the context of scientific and design practice

Content description:

The lecture deals with selected questions and positions of the contemporary architectural discourse. The subject areas defined by the lecturers are narrowed down using detailed analyses of selected examples from contemporary architecture. In addition to the formal-analytical examination of buildings and spaces, the students deal with theoretical and historical approaches that help to understand the contemporary discourse and transfer it to their own design work. The event is organized as a series of lectures with usually three lecturers, each of whom represents their own thematic focus, so that students are confronted with multiple approaches, ways of thinking, design practices and constructive solutions.

Short Projects

Responsible for the module:	**Prof. Sternkopf**	Module code:	**BA 1.6**
Offered in the study program:	**Architecture, BA**	Offered during the semester:	**6th semester**
Credit points:	**8 CP**	Number of participants:	**28**
Weekly semester hours	**6 SWS**	Language of instruction:	**German**
Examination:	**Portfolio/Design**[1]	Type:	**Mandatory module**

Student working hours:	**132 hours of self-study, 68 hours of lectures and supervision of exercises**
Course form:	**Lectures, supervised exercises and free work**

Competence goals:

After students have completed the module, they can:

- formulate a design idea appropriate to the task and implement it in a meaningful construction down to the last detail
- weigh up the individual design parameters and combine them into a holistic solution
- develop material-appropriate and statically sensible load-bearing structures, taking into account the spatial effect
- use representation techniques appropriate to the task, such as model, drawing, sketch, CAD and text

Content description:

The module provides for the processing of construction tasks with extended usage requirements, the contexts of which represent urban development/landscape problem areas. This can involve either a new invention or the conversion of an existing building. The focus of the processing is on the constant review of the connection between context, design and construction as mutually influencing processes. The structural detail is developed from the design concept, checked for its structural correctness and adapted. The design is to be presented in drawings and models.

The content required for the work is conveyed in accompanying lectures. The design process is supervised by correction discussions. In a final event, the students present the results. This presentation is part of the assignment and must be prepared accordingly.

[1]Depending on the task, other forms of examination are also possible in accordance with the examination regulations.

Construction 1

Responsible for the module	**Prof. Arendt**	Module code:	**BA 2.1**
Offered in the study program:	**Architecture, BA**	Offered during the semester:	**1st semester**
Credit points:	**8 CP**	Number of participants:	**28**
Weekly semester hours	**6 SWS**	Language of instruction:	**German**
Examination:	**Portfolio**[2] **Course work**[3]	Type:	**Mandatory module**

Student working hours:	**132 hours of self-study, 68 hours of lectures and supervision of exercises**
Course form:	**Lectures, supervised exercises and free work**

Competence goals:

After students have completed the module, they can:

- understand and apply simple design and construction principles
- recognize the dependence of design and construction under low building physics requirements
- test the relationships between constructions with low building physics requirements and the spatial or building development in the planning process
- identify and implement this dependency in the planning process
- apply presentation techniques appropriate to the task

Content description:

The lectures cover the basics of simple constructions. The aim is to convey the principles of construction, design and the development of details depending on the design concept. The following topics of solid construction are discussed in detail: foundations, single-leaf and multi-leaf external walls, load-bearing/non-load-bearing internal walls, solid ceilings, floor structures, flat roofs, simple window and door constructions (wood).

During the lectures, the course participants complete exercises and receive feedback.
Methods and types of presentation are practiced that can adequately convey constructive and design issues. The presentation of the results is an integral part of the course.

[2]Depending on the task, other forms of examination are also possible in accordance with the examination regulations.
[3]Depending on the task, other forms of examination are also possible in accordance with the examination regulations.

Construction 2

Responsible for the module:	**Prof. Arendt**	Module code:	**BA 2.2**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**2nd semester**
Credit points:	**7 CP**	Number of participants:	**28**
Weekly semester hours	**5 SWS**	Language of instruction:	**German**
Examination:	**Portfolio**[4]	Type:	**Mandatory module**

Student working hours:	**119 hours of self-study, 56 hours of lectures and supervision of exercises**
Course form:	**Lectures, supervised exercises and free work**

Competence goals:

After students have completed the module, they can

- understand and apply the basics of timber construction
- recognize the dependence of design and construction in wooden buildings
- test the relationships between timber construction and spatial or building development in the planning process
- use representation techniques appropriate to the task (model, drawing, sketch, CAD and text)

Content description:

The lectures cover the basics of skeleton construction, with the focus on timber structures. The aim is to convey the principles of construction and the development of details depending on the design concept. The following topics of timber construction are discussed in detail: construction systems (columns, beams, bracing), external and internal wall constructions, ceiling constructions, pitched roof constructions and roof coverings, window and door constructions, simple large-scale glazing, stairs.

During the lectures, the course participants complete exercises and are supervised in corrections. The results of the work are presented by the students. The presentation is an integral part of the course.

[4]Depending on the task, other forms of examination are also possible in accordance with the examination regulations.

Construction 3

Responsible for the module:	**Prof. Kaiser**	Module code:	**BA 2.3**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**3rd semester**
Credit points:	**6 CP**	Number of participants:	**28**
Weekly semester hours:	**4 SWS**	Language of instruction:	**German**
Examination:	**Course work**	Type:	**Mandatory module**

Student working hours:	**105 hours of self-study, 45 hours of lectures and supervision of exercises**
Course form:	**Lectures, supervised exercises and free work**

Competence goals:

After students have completed the module, they can:

- understand and apply complex constructions (mixed construction methods)
- recognize the dependence of design and construction under increased functional and building physics requirements
- test the relationships between constructions with increased building physics requirements and the spatial or building development in the planning process
- use representation techniques appropriate to the task, such as model, drawing, sketch, CAD and text

Content description:

The lectures deal with complex constructions and details that have to meet higher functional and building physics requirements. The aim is to convey the principles of construction and development of details depending on the design idea.

The following topics are discussed in detail: basements and foundations, external wall constructions with large-area window and facade constructions, curtain facades, non-load-bearing interior walls and suspended ceilings, ceiling constructions, floor structures, flat and pitched roofs with roof structures (skylights and penetrations), green roofs, balconies, terraces, installations (bathroom, toilet, kitchen, heating, ventilation).

During the course the participants will work on an exercise (specific design task, e.g. small office building or similar) using plans and models and will be supervised in making corrections. The presentation of the design is part of the course.

Construction4

Responsible for the module:	**Prof. Kaiser**	Module code:	**BA 2.4**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**4th semester**
Credit points:	**7 CP**	Number of participants:	**28**
Weekly semester hours:	**4 SWS**	Language of instruction:	**German**
Examination:	**Course work**	Type:	**Mandatory module**

Student working hours:	**130 hours of self-study, 45 hours of lectures and supervision of exercises**
Course form:	**Lectures, supervised exercises and free work**

Competence goals:

After students have completed the module, they can:

- understand and apply wide-ranging constructions
- recognize the dependence of design and construction in long-span structures (hall structures)
- test the relationships between wide-span constructions and the spatial or building development in the planning process
- use representation techniques appropriate to the task, such as model, drawing, sketch, CAD and text

Content description:

The lectures cover the fundamentals and material-specific characteristics of wide-ranging constructions. The focus is on conveying the principles of construction and the development of details depending on the design concept.

The following topics are discussed in detail: external walls with facade systems for halls and their openings, internal walls, built-in components, installations, ceilings and floors, flat and inclined roof structures, roof structures, roof coverings.

During the lecture, the course participants will work on an exercise (specific design tasks, e.g. market hall, community hall, sports hall, warehouse, etc.) using plans and models and will be supervised in making corrections. The results of the work will be presented by the students. The presentation is part of the course.

Construction 5

Responsible for the module:	**Prof. Arendt**	Module code:	**BA 2.5**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**5th semester**
Credit points:	**10 CP**	Number of participants:	**28**
Weekly semester hours:	**7 SWS**	Language of instruction:	**German**
Examination:	**Course work**	Type:	**Mandatory module**

Student working hours:	**171 hours of self-study, 79 hours of lectures and supervision of exercises**
Course form:	**Lectures, supervised exercises and free work**

Competence goals:

After students have completed the module, they can:

- formulate a design idea appropriate to the task and implement it in a meaningful construction down to the last detail
- develop material-appropriate and statically sensible load-bearing structures, considering the spatial effect
- recognize the interdependencies of sustainable building technology, supporting structure and detail in a building design
- weigh up the individual design parameters and combine them into a holistic solution
- use representation techniques appropriate to the task, such as model, drawing, sketch, CAD and text

Content description:

Based on a technically oriented, sustainable and manageable design task, the conceptual approach and implementation in the practical planning process are deepened.

The task involves a complex urban/landscape context. The scope of the work includes aspects such as energy optimization, compactness, orientation and zoning of the building mass, the floor plan organization taking into account the technical infrastructure and the construction method as well as the details ready for implementation.

Construction systems such as solid constructions, skeleton constructions or lightweight constructions are dealt with in connection with the appropriate building technology. Based on calculations,
The design is presented in drawings and models.

The content necessary for the processing will be covered in accompanying lectures, excursions and/or
Presentations are given. The design process is supervised by correction discussions. The presentation of the results is part of the task and the basis for the assessment.

Visualisation 1

Responsible for the module:	**Prof. Dr. Schmitt**	Module code:	**BA 3.1**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**1st semester**
Credit points:	**8 CP**	Number of participants:	**28**
Weekly semester hours:	**6 SWS**	Language of instruction:	**German**
Examination:	**3 x 1 Portfolio**[5]	Type:	**Mandatory module**

Student working hours:	**132 hours of self-study, 68 hours of lectures and supervision of exercises**
Course form:	**Lectures, supervised exercises and free work**

The overarching goal of the Representation module, consisting of the areas of **Free Drawing** , **Descriptive Geometry** and **Digital Methods** , is to convey the basics of designing, creating and communicating in the field of architecture. Using tasks coordinated between the sub-areas, overarching terms and methods of architectural representation are conveyed and compared in a sustainable manner.
A practical workflow is just as important as expanding practical drawing skills. The three sub-modules are grouped thematically during the semester and synchronized in their sequence .

Competence goals:
After students have completed the module, they can:

- on the basis of a differentiated, trained spatial concept, to capture, analyse and further develop architectural situations in their geometric core as well as from an aesthetic point of view
- quickly grasp and abstract real and imagined spatial situations and communicate, document and visualize them using analogue or digital tools as well as language
- Identify central methods and tools of architectural representation and apply them purposefully in the context of a workflow typical in study and practice.

Content description:
Descriptive geometry 1: The series of analog and digital exercises deals with forms in the most important types of parallel projection. Most of the practical work consists of manual design drawings. There are also CAD-supported applications for modeling and mapping, supplemented by analog models. The main focus of the content is on: main plans (ground, elevation and side views) and oblique axonometries (ground plan axonometry), determination of true sizes, plane sections and unfoldings of polyhedra, and shadow constructions.
Free Drawing 1 : This series of exercises deals with the basics of drawing, with the line and its possibilities of constructing it. It covers principles of design (including light and dark, symmetry and asymmetry, grids, sequences and rhythm) and the graphic or pictorial representation of space (including central aspects of representation theory such as proportion, contrast, hierarchy, etc.).
The line-based depiction and drawing of individual and multiple basic bodies, cubes and round shapes relates to architecture and space and is illustrated using examples. Textures are represented using hatching on everyday objects. The aim is to expressively translate the haptic understanding of freely deformed volumes into drawings.
The basics of color design are taught and applied primarily within abstract tasks. In principle, great importance is attached to the compositionally effective design of each exercise sheet.

[5]Depending on the task, other forms of examination are also possible in accordance with the examination regulations.

Digital methods: The tasks address architectural issues such as partial aspects of an ongoing design or independent specific design tasks. A series of exercises provides a basic introduction to the creative use of digital media in the following key areas: presentation, layout, DTP, image processing and digital drawing or construction.

Visualisation 2

Responsible for the module:	**Prof. Beckenhaub**	Module code:	**BA 3.2**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**2nd semester**
Credit points:	**7 CP**	Number of participants:	**28**
Weekly semester hours:	**6 SWS**	Language of instruction:	**German**
Examination:	**3 x 1 Portfolio**[6]	Type:	**Mandatory module**

Student working hours:	**107 hours of self-study, 68 hours of lectures and supervision of exercises**
Course form:	**Lectures, supervised exercises and free work**

The overarching goal of the Representation module, consisting of the areas of **Free Drawing** , **Descriptive Geometry** and **Digital Methods** , is to impart advanced fundamentals for designing, creating and communicating in the field of architecture. Using tasks coordinated between the sub-areas, overarching concepts and methods of architectural representation are conveyed and compared in a sustainable manner.
A practical workflow is just as important as expanding practical drawing skills. The three sub-modules are grouped thematically during the semester and synchronized in their sequence.

Competence goals:
After students have completed the module, they can:

- quickly analyse, abstract and interpret complex architectural situations based on intensive visual training and in-depth training of spatial imagination
- represent and communicate spatial-architectural situations and issues graphically and visually in a clear and technically precise manner
- Identify specific methods and tools of architectural representation and apply them creatively to develop individual solutions.

Content descriptions:

Descriptive geometry 2: The series of analog and digital exercises deals with bodies in the most important types of central projection. The majority of the practical work consists of hand-drawn construction drawings. There are also CAD-supported applications for digital modelling and mapping, supplemented by analog models. The main focus of the content is: perspective in frontal and corner arrangement, orthogonal axonometry, and cones and cylinders.
Free Drawing 2: This series of exercises enables intensive sensitization of perception and visual training. The aim is to reduce drawing to the essential features.
The students are taught theoretical and practical basics of composition principles and architectural representation, and are given atmospheric additions with figuration and vegetation. The aim is to implement the learned basics in a well-founded way in the application of perspective, proportion, structure, light and shadow using the media of pen and paint, and to develop an individual style in free creative development.

Digital methods: In-depth knowledge in the area of 2D drawing as well as the basics of 3D drawing are imparted, with spatial imagination being particularly trained through the complex and precise input of spatial models.
Basic three-dimensional working and thinking methods are taught using component-oriented 3D models and tested by the students. The increasingly complex workflow is examined from different angles and programs. The ability to

[6]Depending on the task, other forms of examination are also possible in accordance with the examination regulations.

make decisions about the appropriate and timely use of digital tools is trained and strengthened through practical, creative subtasks.
A basic introduction to visualization rounds off the subject in the direction of color, material, light, perspective and geometry and is thus closely related to the other two sub-modules.

Digital planning methods

Responsible for the module	**Prof. Thiessen**	Module code:	**BA 3.3**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**3rd semester**
Credit points:	**2 CP**	Number of participants:	**28**
Weekly semester hours:	**2 SWS**	Language of instruction:	**German**
Examination:	**Portfolio**[7]	Type:	**Mandatory module**

Student working hours:	**27 hours of self-study, 23 hours of lecture**
Course form:	**Lectures, supervised exercises and free work**

The overarching goal of the Digital Planning Methods sub-module is to impart the basics for advanced digital processing of building designs with the aim of systematizing and parameterizing components. The effects of decisions are analysed with the aim of estimating them as early as possible and adapting them as late as necessary (and again and again).
These decisions will have to be made from a cost and scheduling perspective as well as from a design perspective. A practical workflow is just as important as expanding digital skills in dealing with programs, interfaces, standards and management - which is summarized under the general term "Building Information Management" and is taught in this sub-module in close connection with the subject of design.

Competence goals:
After students have completed the module, they can:

- divide your own designs into three-dimensional components and influence their parameters.
- better assess dependencies and impacts of decisions in planning.
- structure data models so that changes are easy and flexibility in the process is maximized.
- plan the interaction of programs in the workflow and apply them as examples

Content description:
The sub-module forms a module with the sub-module "Constructive Design III" in which all aspects of the interaction between design, construction, costs and deadlines are covered using your own examples and given tasks.
The iterative process in the interaction between problems and different approaches to solutions is experienced and compared. Events on the topic of BIM cover this framework in detail (also in relation to regulations and standards).
The use of parametric modules as an addition to three-dimensional planning programs forms the basis. Data can come from various programs and is merged, analysed and structured if necessary. At the end of the process, component lists, schedule and cost plans and also visualizations must be created.

[7]Depending on the task, other forms of examination are also possible in accordance with the examination regulations.

Technique 1

Responsible for the module:	**El-Schami**	Module code:	**BA 4.1**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**1st semester**
Credit points:	**4 CP**	Number of participants:	**150**
Weekly semester hours:	**4 SWS**	Language of instruction:	**German**
Examination:	**Written exam**[8]	Type:	**Mandatory module**

Student working hours:	**55 hours of self-study, 45 hours of lectures and supervision of exercises**
Course form:	**Lectures, supervised exercises and free work**

Competence goals:
After students have completed the module, they can:

- identify applications, compositions and production methods of natural, synthetic, mineral and organic building materials and classify individual building materials in the context of energy and resource efficiency, considering the entire life cycle
- name building physics principles from the field of thermal insulation and moisture protection
- assess essential thermal insulation and moisture protection conditions
- calculate the heat transfer coefficient and specific transmission heat loss
- perform and understand calculations according to Glaser
- recognize the dependency between building concept and building physics and material requirements and identify essential building materials in the discourse for the construction and design of the buildings
- recognize the essential static systems
- determne support forces and internal forces for statically determinate systems
- first cross-sectional measurements and designs from stress and deformation considerations
- gain basic knowledge for in-depth study of structural engineering
- communicate basic knowledge of structures and insight into calculation and design methods - with a view to interdisciplinary cooperation

Content description:

Building Materials Science 1: The lectures cover the origin, composition and properties of building materials and their use in the building structure based on this. The technical, aesthetic and ecological aspects that determine the selection of building materials for specific tasks in the building as a whole are presented, as are the relevant provisions and regulations.
As an alternative to the written exam, course work can be issued on the main topics to accompany the lectures and discussed and assessed as part of a mandatory presentation.

TWL 1: The lecture series covers the basics of load-bearing structures and their structural forms. The following topics are covered in detail: simple static systems, load-bearing components and their relationship to the building, basics of structural design. Exercises are carried out on the main topics to accompany the lectures, which are then discussed and assessed as part of a mandatory presentation. The content of the tasks is the design and assessment of a load-bearing structure or part of a structure.

[8]Depending on the task, other forms of examination are also possible in accordance with the examination regulations.

Technique 2

Responsible for the module:	**Wert**	Module code:	**BA 4.2**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**2nd semester**
Credit points:	**6 CP**	Number of participants:	**150**
Weekly semester hours:	**6 SWS**	Language of instruction:	**German**
Examination:	**Written exam**[9]	Type:	**Mandatory module**

Student working hours:	**82 hours of self-study, 68 hours of lectures and supervision of exercises**
Course form:	**Lectures, supervised exercises and free work**

Competence goals

After students have completed the module, they can

- name building physics principles from the field of thermal insulation and moisture protection
- assess essential thermal insulation and moisture protection conditions
- calculate the heat transfer coefficient and specific transmission heat loss
- recognize the dependency between building concept and building physics and material requirements and identify essential building materials in the discourse for the construction and design of the buildings.
- understand and present elementary facts relating to load-bearing structures and their loads
- recognize the connections between building concept and supporting structure
- name and interpret calculation and design methods.
- essential cross-sections for the later design based on design equations using the geometries
- recognize and apply the relationship between architectural design and static requirements

Content description:

Building physics 1: The lecture series covers the topics of heat and moisture protection, driving rain protection and energy saving as well as the generally accepted rules of technology (DIN 4108).
Heat and moisture protection: Basics of building physics, criteria for a comfortable indoor climate, minimum thermal protection, surface condensate / thermal bridges / mold formation, water vapor diffusion in the component cross-section, thermal protection measures on buildings. Driving rain protection: Capillary water transport, ventilation of components / convective processes. Energy saving: Energy saving regulations, physical, component-related basics (principles, calculation methods), airtight building envelope, winter and summer thermal protection, passive solar energy use (heat radiation, heat storage), measurement methods, calculation methods, rules

Building Materials Science 2 : The lectures cover the origin, composition and properties of building materials and their use in the building structure based on this. The technical, aesthetic and ecological aspects that determine the selection of building materials for specific tasks in the building as a whole are presented, as are the relevant provisions and regulations.
Cradle-to-Cradle, metals, wood and wood-based materials, plastics, insulation materials.
As an alternative to the written exam, course work can be issued on the main topics to accompany the lectures and discussed and assessed as part of a mandatory presentation.

TWL 2 : The lecture series presents the basics of architectural design in relation to static requirements. The following

[9]Depending on the task, other forms of examination are also possible in accordance with the examination regulations.

topics are covered in detail: Determination of essential cross-sectional dimensions as a basis for the subsequent design (roof, column and ceiling cross-sections), establishing references between what has been heard and practice, basics of structural design, stability behaviour, recognizing deformations as a basis, exemplary dimensioning and determination of reasonable spans, material characteristics
In addition to the lectures, exercises are prepared on the main topics, which are then discussed and assessed as part of a mandatory presentation. The content of the tasks is the design and assessment of a structure or part of a structure.

Technique 3

Responsible for the module	**Rohr**	Module code:	**BA 4.3**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**3rd semester**
Credit points:	**4 CP**	Number of participants:	**28**
Weekly semester hours:	**4 SWS**	Language of instruction:	**German**
Examination:	**Portfolio**[10]	Type:	**Mandatory module**

Student working hours:	**55 hours of self-study, 45 hours of lectures and supervision of exercises**
Course form:	**Lectures, supervised exercises and free work**

Competence goals:

After students have completed the module, they can:

- recognize scientific principles as a prerequisite for an assessment of sound insulation and spatial
- recognize acoustic conditions
- provide and understand simple sound insulation evidence
- identify fire protection requirements and outline solutions for preventive fire protection problems
- recognize the dependence of the building concept on the requirements of sound and fire protection and weigh them up in the discourse.
- the mutual dependencies of sustainable building technology and insulated building envelope in a
- recognize residential building design and define holistic solutions
- carry out an energy demand calculation for a residential building in accordance with current legislation on the energy efficiency of buildings.

Content description:

Building Physics 2: The lectures cover the topics of room acoustics and sound insulation of buildings, with the focus on the application of room acoustics and sound insulation requirements in building design. The following topics are covered:

- physical principles of acoustics: sound waves / sound field / speed of sound, audibility. Room acoustics: sound reflection / sound absorption / reverberation time, sound absorbers / room geometry.
- sound insulation in building construction: airborne sound insulation, impact sound insulation, sound insulation in solid construction, in skeleton construction, in
- building services systems.
- sound insulation in urban development: noise protection measures. Relevant measurement methods, calculation methods, rules.
- basics of fire protection, external and internal sealing, escape and rescue routes, requirements
- the state building regulations for building materials and components.

Energy requirement calculation: On the basis of an existing, preferably own design, an energy requirement calculation is prepared for a residential building in accordance with the current legislation on the energy efficiency of buildings.

- energy-relevant design skills such as energy optimization, compactness, orientation and zoning of the building mass, as well as floor plan organization taking into account the technical infrastructure and the construction method are learned.
- component structures and their energetic significance in solid and timber construction are investigated.
- technical supply variants are learned and their impact on the primary energy balance of the energy demand calculation is examined.
- various building standards (e.g. KfW Passive House) and their technical requirements are presented.

[10]Depending on the task, other forms of examination are also possible in accordance with the examination regulations.

The structural and building technology content required for the work is taught in accompanying lectures and/or presentations. The energy requirement calculation is learned in an exercise. An energy requirement report with project documentation is prepared as an examination task.

Technique 4

Responsible for the module	**Prof. Seegräber**	Module code:	**BA 4.4**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**4th semester**
Credit points:	**4 CP**	Number of participants:	**28**
Weekly semester hours:	**4 SWS**	Language of instruction:	**German**
Examination:	**Course work**[11]	Type:	**Mandatory module**

Student working hours:	**94 hours of self-study, 56 hours of lectures and supervision of exercises**
Course form	**Lectures, supervised exercises and free work**

Competence goals:

After students have completed the module, they can:

- identify basic knowledge of technical building equipment and present it in corresponding work and design plans.
- recognize the dependency between building technology and the spatial building structure and take it into account in the building design.
- discuss relevant building technology systems in interdisciplinary collaboration with the specialist planners involved in the construction and planning process.

Content description:

In the lectures, system components, piping networks and installation principles of the electrical, sanitary, ventilation and heating technology trades are discussed in the context of structural implementation.

Electrical installation daylight/artificial light, structure of electrical installations in buildings, electrical planning, safety devices for electrical systems, European installation bus, lightning protection, equipotential bonding and earthing, sanitary installations, water supply and drainage systems, pre-wall installations, rainwater and process water use, dimensioning aids, heating installations, heat generation and exhaust gas systems, heat storage, pipe networks, individual radiators and heating surfaces, control devices, heat requirement calculations, dimensioning aids, ventilation technology, natural ventilation, ventilation shafts, mechanical ventilation, heat exchangers, heat recovery, air conditioning systems, systems for building cooling, a course paper will be published to accompany the lectures on the four main topics.

[11] Depending on the task, other forms of examination are also possible in accordance with the examination regulations.

Theory 1

Responsible for the module	**Robbers, Ph.D .**	Module code:	**BA 5.1**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**1st semester**
Credit points:	**2 CP**	Number of participants:	**150**
Weekly semester hours:	**2 SWS**	Language of instruction:	**German**
Examination:	**Course work / exam**	Type:	**Mandatory module**

Student working hours:	**27 hours of self-study, 23 hours of lectures and supervision of exercises**
Course form:	**Lectures, supervised exercises and free work**

Competence goals:

After students have completed the module, they can:

- understand and analyse texts on various architectural historical and theoretical topics
- independently describe, identify and discuss architectural objects
- understand the basics of architectural history and theory
- recognize the role of theoretical thinking for architectural practice in its historical dimensions
- understand the scientific foundations of architectural work

Content description:

The event introduces the field of architecture from the perspective of architectural history and theory . Fundamental themes and questions are clarified using selected architectural examples from the history of construction. Individual buildings are presented through their formal properties and constructive solutions in different historical contexts and using different scientific ways of thinking. The aim is to help students understand the interdisciplinary nature of the history and theory of architecture.

Theory 2

Responsible for the module:	**Prof. Schreiber**	Module code:	**BA 5.2**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**2nd semester**
Credit points:	**2 CP**	Number of participants:	**150**
Weekly semester hours:	**2 SWS**	Language of instruction:	**German**
Examination:	**Exam**[12]	Type:	**Mandatory module**

Student working hours:	**28 hours of self-study, 22 hours of lecture**
Course form:	**Lectures and Free Work**

Competence goals:

After students have completed the module, they can:

- classify architecture from its beginnings to the industrial revolution and to recognize and describe its differences
- recognize the dependence of architecture on materials, construction technology and social development
- prepare construction surveys, i.e. documentation as scaled drawings in three-panel projection, as hand drawings

Content description:

The lectures convey the history of architecture from its beginnings to the industrial revolution. They continue the presentation of the history of architecture from the first semester and are arranged chronologically.
They deal with the representation of individual exemplary buildings as well as details of these buildings. The focus is on spatial units that define architecture across eras.
Stylistic, technical and typological aspects of architecture are mentioned.
The course present the problem in theory and images using selected examples.
An exercise accompanying the lecture (construction survey of a historical architectural detail), which is carried out individually, will be supervised.

[12]Depending on the task, other forms of examination are also possible in accordance with the examination regulations.

Theory 3

Responsible for the module	**Wolff**	Module code:	**BA 5.3**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**3rd semester**
Credit points:	**4 CP**	Number of participants:	**28**
Weekly semester hours:	**4 SWS**	Language of instruction:	**German**
Examination:	**Exam**[13]	Type:	**Mandatory module**

Student working hours:	**55 hours of self-study, 45 hours of lectures and supervision of exercises**
Course form:	**Lectures, supervised exercises and free work**

Competence goals:

After completing the module, students can:

- identify architectural solutions from the Industrial Revolution to the beginning of the 20th century and understand their dependence on materials, construction technology and social development
- understand and describe basic building blocks and typologies in urban space formation
- understand and describe essential typologies and phenomena of urban open spaces
- classify and explain essential phenomena in urban planning and architectural history
- understand and describe the relationships between social phenomena and urban and architectural development
- understand and describe the process and complexity of urban planning processes
- distinguish, descriptively classify and compare time, shape and structure characteristics as well as acting persons

Content description:

Architectural History 2:

The lectures cover the history of construction and architecture from 1750 to the beginning of the 20th century and are explained using exemplary building typologies, the development of the city, and cultural and art historical phenomena. The focus is on technical, typological and stylistic aspects of construction and architecture development depending on the respective social processes.

Urban Studies:
The lectures establish the connections between urban space formation and social phenomena. Basic knowledge is provided on elementary urban building blocks as well as on building and open space typologies. In addition, key aspects of urban development are presented in a historical context. A planning reference is established by imparting knowledge on planning processes and their communicative requirements. Selected topics are linked to social science issues (sociology, urban geography, anthropology).

[13]Depending on the task, other forms of examination are also possible in accordance with the examination regulations.

Theory 4

Responsible for the module	**Prof. Dr. Beckmann**	Module code:	**BA 5.4**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**4th semester**
Credit points:	**4 CP**	Number of participants:	**28**
Weekly semester hours:	**4 SWS**	Language of instruction:	**German**
Examination:	**Exam**[14]	Type:	**Mandatory module**

Student working hours:	**55 hours of self-study, 45 hours of lectures and supervision of exercises**
Course form:	**Lectures, supervised exercises and free work**

Competence goals:

After students have completed the module, they can

- identify architectural solutions from the beginning of the 20th century to the present and understand their dependence on materials, construction technology and social development
- basic building blocks and typologies in architecture Understanding and describing urban space formation
- understand the technical, social, political and economic conditions of architecture
- understand the relationships between contemporary architecture and building history
- name the planning law principles and institutions and explain the interaction between building design and building law
- understand the building regulations and procedures

Content description:

Architectural History 3 :

The subject conveys the history of architecture from the beginning of the 20th century to the present day and presents this chronologically using exemplary, individual buildings and the development of the city. Stylistic, technical and typological aspects are examined in relation to social processes of the respective time. In addition, architectural personalities and architectural movements such as metabolism, structuralism, etc. are presented.

Construction and planning law: The system of construction planning and building regulations, the principles of urban development planning, the course of the urban development plan procedure, development content and cross-relationships with the building use regulations, the admissibility of construction projects, requirements for exceptions and exemptions including building permit and notification procedures are covered. Particular attention is paid to the consideration of nature and landscape in urban development planning.

[14]Depending on the task, other forms of examination are also possible in accordance with the examination regulations.

Theory 5

Responsible for the module	**Robbers, Ph.D .**	Module code:	**BA 5.5**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**5th semester**
Credit points:	**4 CP**	Number of participants:	**28**
Weekly semester hours:	**4 SWS**	Language of instruction:	**German**
Examination:	**Course work**	Type:	**Mandatory module**

Student working hours:	**55 hours of self-study, 45 hours of lectures and supervision of exercises**
Course form:	**Lectures, supervised exercises and free work**

Competence goals:

After students have completed the module, they can

- identify and relate basic contents and figures of architectural theory
- connect between architectural history, design practice and theoretical knowledge
- independently think, describe and discuss architectural theory
- understand critical thinking in the field of architecture
- apply theoretical knowledge operational for architectural design
- apply the scientific principles of architectural work

Content description:

The lecture deals with central content and positions from the history of architectural theory. Basic voices of architectural thought from different periods and geographical contexts are presented as examples. Selected objects and spaces are analysed in more detail by reading relevant reflections on architectural theory. The constitution of architectural action in theoretical knowledge references is highlighted. The course emphasizes the importance of interdisciplinary thinking for architectural design practice and the constitution of architectural knowledge.

The seminar covers a selection of relevant texts from architectural theory. Based on the joint reading and discussion of various topics, the students are instructed to work independently on their own topic, present it and discuss it in the group. The examination consists of the written preparation of an academic paper.

Urban planning

Responsible for the module	**Wolff**	Module code:	**BA 6.1**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**5th semester**
Credit points:	**10 CP**	Number of participants:	**28**
Weekly semester hours:	**7 SWS**	Language of instruction:	**German**
Examination:	**Course work**[15]	Type:	**Mandatory module**

Student working hours:	**171 hours of self-study, 79 hours of lectures and supervision of exercises**
Course form:	**Lectures, supervised exercises and free work**

Competence goals:

After students have completed the module, they can:

- capture the dimensions of urban spaces
- understand the basic complexity of urban planning contexts
- recognize and design Urban Building Typologies
- understand public space as a connecting spatial and social element of urban spaces
- design private and public open spaces in a meaningful correspondence with buildings and their uses.
- develop urban planning designs for smaller urban quarters or hybrid areas.
- use representation tools such as model, drawing, sketch, CAD, and text in the context of the task.

Content description:

The students develop an urban design. This design is preceded by urban spatial analyses in the design area or in exemplary spaces (relevant to the design topic). Street spaces, squares, open spaces and building formations are examined from functional, design, sociological and urban geographical perspectives. The students thus explore fundamental urban typologies and constellations as well as the interaction of private and public open spaces with different building formations.

Based on this, an urban design is created. The task includes current urban planning issues and introduces the students to the complexity of urban design. However, the spatial scope remains manageable for the students.
The students develop conceptual ideas for the area and its development process. On this basis, they design spatially and functionally appropriate urban and open space planning solutions for the design area. The designs also include the architectural characteristics of the development that are relevant to urban development (access, private open spaces, design of the ground floor zone, atmosphere).

The design must be presented both in the model and in drawings.

The design work is accompanied by topic-related lectures, and the development of the design is accompanied by correction discussions. The students present their preliminary exercises and the design (in an interim presentation and final presentation) to students and lecturers.

Module BA 5.3 with the lecture series Urban Studies provides prior knowledge for the work.

[15] Depending on the task, other forms of examination are also possible in accordance with the examination regulations.

Planning and Construction Management 1

Responsible for the module	**Prof. Dr. Schramm**	Module code:	**BA 7.1**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**3rd semester**
Credit points:	**6 CP**	Number of participants:	**28**
Weekly semester hours:	**4 SWS**	Language of instruction:	**German**
Examination:	**Course work**[16]	Type:	**Mandatory module**

Student working hours:	**105 hours of self-study, 45 hours of lectures and supervision of exercises**
Course form:	**Lectures, supervised exercises and free work**

Competence goals:

After students have completed the module, they can:

- apply the performance profile according to HOAI
- carry out area and volume determinations
- carry out cost estimates
- calculate the architect's fee
- name basic knowledge about financing construction projects

Content description:

The lectures cover the following topics:

- Overview of the architect's services
- Overview of the institutions involved in planning and construction
- Scheduling from the perspective of the project participants
- Introduction to area and volume calculation according to DIN 277
- DIN 276, Cost Estimation and Cost Control Fee Determination (Principles of the HOAI)
- Basic Concepts of Financing
- Project management and facility management as the task of the architect
- usage cost determination according to DIN 18960

Exercises are held on the individual topics alongside the lectures. Various subtasks are to be created based on an existing draft. This module provides basic knowledge for the modules BA 7.2.

[16]Depending on the task, other forms of examination are also possible in accordance with the examination regulations.

Planning and Construction Management 2

Responsible for the module:	**Prof. Dr. Schramm**	Module code:	**BA 7.2**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**4th semester**
Credit points:	**6 CP**	Number of participants:	**28**
Weekly semester hours	**6 SWS**	Language of instruction:	**German**
Examination :	**Course work**[17]	Type:	**Mandatory module**

Student working hours:	**82 hours of self-study, 68 hours of lectures and supervision of exercises**
Course form:	**Lectures, supervised exercises and free work**

Competence goals:

After students have completed the module, they can

- apply the basic principles of the VOB
- take the necessary steps to prepare for execution
- recognize the relationships between design, execution planning and performance description
- develop plans ready for implementation
- prepare service descriptions.

Content description:

The lectures cover the following topics:

- Scope of services for execution preparation (according to HOAI)
- Introduction to the VOB/A (tendering, awarding, invoicing)
- Handling the VOB as an aid for execution preparation and construction implementation (VOB/B, C and DIN 18299)

In the accompanying exercises, an existing design must be worked on in more detail. The focus is on developing implementation plans and creating a performance description.
In detail, the following must be processed: preparation of a service description (structure, text modules, quantity determination, preliminary remarks, contract conditions) using a computer program, implementation planning (usually in 1:50 scale) as a basis for quantity determination, development of key details for tender preparation.

The following tasks are required: developing plans ready for implementation and the necessary details, determining the quantities, drawing up the building description, and a description of the services. The content required for the work is taught in the accompanying lectures and intensive corrections.

[17] Depending on the task, other forms of examination are also possible in accordance with the examination regulations.

Elective module 1

Responsible for the module	**Prof. J. Arendt**	Module code:	**BA 8.1**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**3rd-6th semesters**
Credit points:	**6 CP**	Number of participants:	
Examination:	**Examination type (will be announced before the start of the semester)**	Language of instruction:	

Student working hours:	**150 hours**
Course form:	**depending on the module taken**

Students must take two or more freely selectable modules from the elective courses offered by the Department of Architecture, totalling at least 12 credit points. Modules taken in other departments or universities that are conducive to the goals of the Bachelor's degree program in Architecture can also be recognized as equivalent. The examination board decides on recognition. The competence goals and the type of examination are announced in good time before the start of the semester.

Elective module 2

Responsible for the module	**Prof. J. Arendt**	Module code:	**BA 8.2**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**3rd-6th semesters**
Credit points:	**6 CP**	Number of participants:	
Examination:	**Academic performance (will be announced before the start of the semester)**	Language of instruction:	

Student working hours:	**150 hours**
Course form:	**depending on the module taken**

Students must take two or more freely selectable modules from the elective courses offered by the Department of Architecture, totaling at least 12 credit points. Modules taken in other departments or universities that are conducive to the goals of the Bachelor's degree program in Architecture can also be recognized as equivalent. The examination board decides on recognition. The competence goals and the type of examination are announced in good time before the start of the semester.

Bachelor's thesis

Responsible for the module	**Prof. J. Arendt**	Module code:	**BA 9.1**
Offered in the study program:	**Architecture, BA**	Offered in semester:	**6th semester**
Credit points:	**12 CP**	Number of participants:	
Examination:	**Project Design / Colloquium**	Language of instruction:	**German**

Student working hours:	**297 hours of self-study, 3 hours of supervision and colloquium**
Course form:	**Correction discussions, colloquium and free work**

Competence goals:
After students have completed the module, they can

- create complex relationships between interior and exterior space, form and function, colour and material, shape and meaning, taking technical requirements into account, to create a holistic design
- present their design using the available means of presentation (exhibition)
- communicate and justify the solution found argumentatively, both linguistically and figuratively

Content description :
A design task of manageable scope and with an appropriate level of complexity is assigned. The topic of the bachelor's thesis should deal with the transformation and thus reinvention of an older building or, if it is an originally newly designed architecture, should seek to address a landscape/urban planning problem situation (urban wasteland, periphery).
The design must be presented in drawings, models and digital visualization at an appropriate scale. The final presentation will take place in a colloquium (open to public from university).