

MM 1 - Compulsory Module A - Cultural Sciences					
	Workload	Credits	Study semester	Frequency of the offer	Duration
	180 h	6 CP	1st semester	In the winter	1 semester
Teaching		Contact time	Home study		Planned size of group
MM 1.1: Lecture		2 SPW / 30 h	45h		25
Seminar/Tutorial		1 SPW / 15 h			
MM 1.2: Lecture		2 SPW / 30 h	45h		
Seminar/Tutorial		1 SPW / 15 h			
Learning outcomes / competencies					
<p>The module teaches the ability to reflect on the basic processes of cultural change with the use of different models of thought and perspectives. Opinion-forming and constructive lines of argumentation are developed on a pragmatic level in the design process, and the associated repertoire addressing existing architecture is extended.</p> <p>Key competencies: The students' use of academic texts and theoretical models should be strengthened and methodical expertise should be conveyed.</p>					
Contents					
<p>The compulsory modules for course group A, "Cultural Sciences", are offered, among others, in the following topic areas:</p> <p>MM 1.1 Architectural Theory Oriented to Existing Buildings: Architectural Theory Oriented to Existing Buildings reflects the history and typology of building in terms of its relationship with civilization, and attempts to interpret the act of building as a cultural achievement. In terms of the scope provided, the theory is limited to the architectural history of the 19th to the 21st century, which is condensed in the form of written statements on contemporary building, but also presents a world of the future on a prognostic and idealistic basis. Practical design is thereby transferred into broad contexts, in the range of theories, as it were. In this respect, questions concerning the existence and impact of different theories and methods are examined and connected with the practise of design. Before the background of social change, the discourse on architectural theory should be subject to consistent further development, and in this way, create the conditions for a comprehensive design, independent power of judgement, and flexibility of design and spirit.</p> <p>Topics:</p> <ul style="list-style-type: none"> • Intentions and methods in architecture • Architecture in the social and constructional context • The urban landscape and its elements • Experts – laypersons – communication • Contrasts / old versus new • Language Expression Meaning • Quality of design and scale - the psychology of design • Ephemeral architecture • Developments and trends in architecture and urban development • Construction: Regional – International <p>MM 1.2 Practice and Theory of the Preservation of Monuments / Historical Buildings Research In the Preservation of Monuments, the old/ancient building is considered as a whole with the aim of perceiving, recreating and developing its identity. In this respect, the historical and theoretical principles of the preservation of monuments are presented and subsequently, from the point of view of the architect, the craftsmanship-based, technical, legal and planning principles of historic buildings preservation are explained and the special aspects of the preservation</p>					

of historic buildings are derived. On this basis, an understanding should be awakened for the variety of the professional groups that are usually involved in the process of the preservation of historic buildings.

Topics:

- Maintenance
- Renovation
- Conservation
- Restoration
- Reconstruction

Historical Buildings Research:

Historical Buildings Research teaches methods for studying the construction-related history of individual buildings. The time frame for studying the building in questions ranges from its origins to the present day. The most important source for Historical Buildings Research is the material substance of the building under consideration. In addition, the evaluation of written sources and similar references is incorporated in the investigation.

Teaching format

Lecture / seminar

Requirements for attending course

None

Examination format

Submission and presentation (recital) of the term paper in either module MM 1.1 or MM 1.2, and oral examination in both modules.

Requirement for the awarding of credit points

The grade for the module is made up as follows: 50% for the term paper in one of the two module elements (3 CP) and 25% for the oral examination in module 1.1 "Architectural Theory Oriented to Existing Buildings" (1.5 CP) and 25% for the oral examination in module 1.2 "History and Theory of the Preservation of Monuments / Historical Buildings Research" (1.5 CP).

Completion of the semester assignments, each with a minimum grade of sufficient (4.0).

Weighting of the grade for the final grade

6/120 (5%)

Module leader(s) and principal tutor(s)

Univ.- Prof. Dr. Dr. Karl Kiem / Univ.- Prof. Dipl.-eng. Ulrich Exner

Additional information:

MM 2 - Compulsory Module B - Building Theory and Design					
	Workload	Credits	Study semester	Frequency of the offer	Duration
	180 h	6 CP	2nd semester	In the summer	1 semester
Teaching MM 2.1: Lecture Seminar/Tutorial MM 2.2: Lecture Seminar/Tutorial		Contact time 2 SPW / 30 h 1 SPW / 15 h 2 SPW / 30 h 1 SPW / 15 h	Home study 45h 45h		Planned size of group 25
Learning outcomes / competencies The module conveys appropriate solutions for design tasks with architectural methods to bring about an independent statement and/or an independent design. Raising the awareness for specific processes of perception and the development of the general and specialist principles pertaining to the creative design should be refined and honed in coordination with the context of the building. Sensitivity for aesthetics should be conveyed to enable an evaluation in the sense of a "good design". Key competencies: Sensitivity for aesthetics as well as the ability to conduct qualified assessments and evaluations should be gained.					
Contents: The compulsory modules for course group B, "Building Theory and Design", are offered, among others, in the following topic areas: MM 2.1 Metamorphosis and Design: <ul style="list-style-type: none"> • Ensemble as a historic backdrop • Classical/modern archetypes • Unique/ensemble • Functionless spaces • Function and adaptation • Primitive hut / utopia MM 2.2 Construction with Existing Buildings: <ul style="list-style-type: none"> • Conditions of design in terms of the reuse, addition and conversion of existing buildings in connection with the use-related concepts • Solutions for design tasks in terms of the combination of old and new • Formal and theoretical strategies for dealing with existing buildings (design-shaping moments, such as the formal attributes of the joint, composition and spatial configuration) 					
Teaching format Lecture / seminar					
Requirements for attending course None					
Examination format Submission and presentation (recital) of the term paper in either module MM 2.1 or MM 2.2, and oral examination in both modules.					
Requirement for the awarding of credit points The grade for the module is made up as follows: 50% for the term paper in one of the two module elements (3 CP) and 25% for the oral examination in module 2.1 "Metamorphosis and Design" (1.5 CP) and 25% for the oral examination in module 2.2 "Construction with Existing Buildings" (1.5 CP). Completion of the semester assignments, each with a minimum grade of sufficient (4.0).					
Weighting of the grade for the final grade 6/120 (5%)					
Module leader(s) and principal tutor(s) Univ.- Prof. Dipl.-eng. Peter Karle / Univ.- Prof. Dipl.-eng. Götz Stöckmann					
Additional information ---					

MM 3 - Compulsory module C1 - Construction and Technology I					
	Workload	Credits	Study semester	Frequency of the offer	Duration
	180 h	6 CP	1st semester	In the winter	1 semester
Teaching MM 3.1: Lecture Seminar/Tutorial MM 3.2: Lecture Seminar/Tutorial		Contact time 2 SPW / 30 h 1 SPW / 15 h 2 SPW / 30 h 1 SPW / 15 h	Home study 45h 45h		Planned size of group 25
Learning outcomes / competencies The goal is to be able to perceive a building in terms of its constructional and technical complexity and to develop appropriate designs from today's point of view and in terms of the appropriate use. The module should prepare students for developing independent solutions in the process of design and implementation with both new buildings and plans for existing buildings. Key competencies: Raising the awareness for resource-saving and sustainable "planning and building" in the overall context of the process of construction and planning. Preparation of the academic results and presentation of the results in the form of a recital.					
Contents The compulsory modules for course group C1, "Construction and Technology", are offered, among others, in the following topic areas: MM 3.1.1 Building Construction: <ul style="list-style-type: none"> • Conveying practically-oriented methods and example-based factual knowledge of a building structure • Conveying the relationship between function, construction and design with new buildings and the planning of existing buildings • The interdependence between the building materials, construction and design • Ecology and sustainability MM 3.1.2 Construction with Existing Buildings: <ul style="list-style-type: none"> • Presentation of methods for exemplary approaches to building construction in correlation with possible designs and in consideration of the results of the analysis and evaluation • Methods for the systematic development of all the details of the implementation (differentiation between primary, secondary and complimentary constructions) • Interplay between old and new building structures as a new design- and construction-based whole MM 3.2 Structural design: <ul style="list-style-type: none"> • Definition of different structural systems • Identification of the load transfer elements • Ascertaining of the supporting elements in existing buildings • Analysis of the existing supporting structure from the construction, design and historic perspectives • Classification of the supporting structure for the planning of existing and new buildings 					
Teaching format Lecture / seminar					
Requirements for attending course None					
Examination format Submission and presentation (recital) of the term paper in either module MM 3.1 or MM 3.2, and oral examination in both modules.					
Requirement for the awarding of credit points					

The grade for the module is made up as follows: 50% for the term paper in one of the two module elements (3 CP) and 25% for the oral examination in module 3.1 "Building Construction / Construction with Existing Buildings" (1.5 CP) and 25% for the oral examination in module 3.2 "Construction with Existing Buildings" (1.5 CP).

Completion of the semester assignments, each with a minimum grade of sufficient (4.0).

Weighting of the grade for the final grade

6/120 (5%)

Module leader(s) and principal tutor(s)

Univ.- Prof. Dipl.-eng. Peter Karle / Univ.-Prof. Dr.-eng. Thorsten Weimar

Additional information:

MM 4 - Compulsory module C2 - Construction and Technology II					
	Workload	Credits	Study semester	Frequency of the offer	Duration
	180 h	6 CP	3rd semester	In the winter	1 semester
Teaching MM 4.1: Lecture Seminar/Tutorial MM 4.2: Lecture Seminar/Tutorial		Contact time 2 SPW / 30 h 1 SPW / 15 h 2 SPW / 30 h 1 SPW / 15 h	Home study 45h 45h		Planned size of group 25
Learning outcomes / competencies The goal of the module is to create, optimise and/or supplement sophisticated technical systems as complete systems according to the current level of technology and in consideration of the conceptual idea, the intended use and the optimum boundary conditions. The module should provide preparation for independent solutions in the process of design and implementation. At the same time, in this module, the knowledge of building physics gained in the bachelor's course is strengthened. Key competencies: The compulsory module aims to convey the latest findings from the worlds of technology and science and raise the awareness levels for sustainable and resource-saving building.					
Contents The compulsory modules for course group C2, "Construction and Technology", are offered, among others, in the following topic areas: MM 4.1.1 Building Services Engineering: Methods for the analysis of existing buildings and the evaluation of the technical services installations and the technical infrastructure are conveyed: The examination of the existing infrastructure of the different technical installation systems is presented according to the types of heating, air conditioning and ventilation, water, waste water and technical systems in terms of the reuse in the scope of new uses. The arrangement, dimensions and state of the existing technical facilities, paths and switchboards is to be ascertained, analysed and evaluated in consideration of their technical standard, functionality, operational safety, minimum hygiene requirements, technical fire safety and incorporation in the overall structure of the building. MM 4.1.2 Construction with Existing Buildings: The methods for the development of a planning concept for the building installation systems which are to be renewed, replaced or radically changed are conveyed. Building on the results of the analysis and the evaluation, the planning principles are presented with which the comfort, a low energy requirement, the efficiency of the construction and operation, the hygiene requirements and, in particular, the technical feasibility are achieved. From the numerous technical solutions, based on the existing technical installations, the students should be placed in the position of being able to choose an optimum technical design on the basis of the determined decision-making criteria and to integrate it in the design. MM 4.2 Building Physics: Buildings and their constructions are analysed and evaluated regarding their physical attributes. <ul style="list-style-type: none"> • Ascertaining of the existing thermal insulation • Thermal renovation • Examination of the humidity protection • Subsequent sealing work • Ascertaining of the sound proofing 					

<ul style="list-style-type: none">• Sound proofing renovation• Fire safety
Teaching format Lecture / seminar
Requirements for attending course None
Examination format Submission and presentation (recital) of the term paper in either module MM 4.1 or MM 4.2, and oral examination in both modules.
Requirement for the awarding of credit points The grade for the module is made up as follows: 50% for the term paper in one of the two module elements (3 CP) and 25% for the oral examination in module 4.1 "Building Technology / Construction with Existing Buildings" (1.5 CP) and 25% for the oral examination in module 4.2 "Construction with Existing Buildings" (1.5 CP). Completion of the semester assignments, each with a minimum grade of sufficient (4.0).
Weighting of the grade for the final grade 6/120 (5%)
Module leader(s) and principal tutor(s) Univ.-Prof. Dr.-eng. Lamia Messari-Becker
Additional information: ---

MM 5 Compulsory module D – Building Planning and Construction Management					
	Workload	Credits	Study semester	Frequency of the offer	Duration
	180 h	6 CP	2nd sem.	In the summer	1 semester
Teaching		Contact time	Home study		Planned size of group
MM 5.1: Lecture		2 SPW / 30 h	45h		25
Seminar/Tutorial		1 SPW / 15 h			
MM 5.2: Lecture		2 SPW / 30 h	45h		
Seminar/Tutorial		1 SPW / 15 h			
Learning outcomes / competencies					
<p>MM 5.1 Construction Economics and Project Development</p> <p>In this module the principles regarding project development and the real estate sector are considered and the specific factors relating to existing buildings in terms of the schedule planning, cost planning and tendering are conveyed with specific practical references.</p> <p>In the scope of the analysis in terms of construction economics, the students gain basic knowledge regarding the process of analysis and assessment for the general suitability of the location and/or the suitability of the existing buildings.</p> <p>In this respect, the risk assessment and risk management should also be incorporated in the course of the project. The goal is for the prospective architects to learn all of the relevant methods concerning construction economics in the analysis and assessment of existing buildings and to therefore be in the position of being able to lead an existing project to commercial success from the start.</p> <p>MM 5.2 Building and Planning Law</p> <p>The goal is to put the prospective architects in a position of being able to identify the necessary basic legal structures, also with sophisticated construction and planning tasks, to take these into account in terms of their approach in relation to the different planning and construction participants, to identify the limits of the actual steering possibilities, and thereby to focus the problem-related awareness for the legally relevant issues regarding the construction, and finally, to create the conditions for being able to manage the project that is being developed to a positive conclusion.</p> <p>Key competencies: Management expertise as well as knowledge of process steering and the organisation of work.</p>					
Contents					
MM 5.1 Construction Economics and Project Development					
Principles of Project Development					
The basic principles and mechanism of the project development are determined. Among others, these include approaches, profitability calculations, risk assessments and the financing of construction projects.					
Building and/or Site Suitability Market Situation and Use Concept					
For the determination of the suitability of the site, it is initially necessary for the macro and micro-economic framework factors to be discussed and compared in a profile of the strengths and weaknesses. In the scope of the initial investment deliberations with existing building projects, the current value-determining processes for developed plots of land and the legal planning factors resulting from existing development plans or the protection of existing buildings are addressed. Following analyses of the suitability of the building and/or location, use-concepts relating to the appropriate market situation are discussed.					
Cost Planning, Schedule Planning, Tendering with Existing Buildings Projects					
Factors specific to the existing buildings are discussed on the basis of the existing basic knowledge on the costs and schedule planning (e.g. building during ongoing operations, the creation of key cost					

data, exit solutions).

In this respect, an integrated risk management and methods for the practical implementation are addressed. In the area of the tendering of construction services during construction with existing buildings, the framework conditions for a professional and comprehensive determination of the necessary individual positions are explained using practical examples which aim to identify the potential follow up work at an early stage and to thereby avoid unnecessary follow-up work. The special attributes of follow-up work in the case of problems with the construction sequence during construction with existing buildings are also considered in detail.

MM 5.2 Building and Planning Law

The module builds on the basic knowledge regarding German building and planning law and also draws contextual references with international building law. In this respect, the key topic areas in the field of construction contract law, architectural law and procurement law are addressed in detail. Problems in the area of building practice are discussed on the basis of recent legal rulings and then questioned using legal principles. The specific problems relating to planning and construction with existing buildings should be assessed from the point of view of the planner with regard to their legal relevance. This ranges from the question of the necessity of a building permit (under which conditions?) to the question of which possible diverging provisions apply to construction with existing buildings, through to legal considerations concerning all contractual relationships of those participating in the construction work. Topics such as the architect's fee, legal liability, problems during the construction process and follow-up work are addressed. Assessments under planning law, problems and solutions should be formulated at the beginning of the specific planning tasks, and the feasibility of a project step and/or the necessary requirements under planning law are assessed.

Teaching format

Lecture / seminar

Requirements for attending course

None

Examination format

Submission and presentation (recital) of the term paper in either module MM 5.1 or MM 5.2, and oral examination in both modules.

Requirement for the awarding of credit points

The grade for the module is made up as follows: 50% for the term paper in one of the two module elements (3 CP) and 25% for the oral examination in module 5.1 "Construction Economics and Project Development" (1.5 CP) and 25% for the oral examination in module 5.2 "Construction with Existing Buildings" (1.5 CP).

Completion of the semester assignments, each with a minimum grade of sufficient (4.0).

Weighting of the grade for the final grade

6/120 (5%)

Module leader(s) and principal tutor(s)

Univ.-Prof. Dr.-eng. Bert Bielefeld / Prof. Dr. jur. Falk Würfele

Additional information:

MM 6 - Elective Module A - Cultural Sciences					
	Workload	Credits	Study semester	Frequency of the offer	Duration
	180 h	6 CP (2x3 CP)	3rd semester	In the winter	1 semester
Teaching MM 6.1: Lecture Seminar/Tutorial MM 6.2: Lecture Seminar/Tutorial		Contact time 2 SPW / 30 h 1 SPW / 15 h 2 SPW / 30 h 1 SPW / 15 h	Home study 45h 45h		Planned size of group 25
Learning outcomes / competencies Depending on their personal preferences and interest, the students gain in-depth knowledge in the study areas of the cultural sciences. Key competencies: Preparation of the academic results and presentation of the results in the form of a recital.					
Contents In addition to the current research projects, the elective modules for course group A, "Cultural Sciences", are offered, among others, in the following topic areas: The Changing Culture of Urban Development: <ul style="list-style-type: none"> • Development of models of urban development • The changing definition of urban space and the public realm • New use requirements relating to urban areas History and Theory of Architecture: <ul style="list-style-type: none"> • History of architecture focusing on theory, with special current research-relevant topics History of Art / Preservation of Monuments: <ul style="list-style-type: none"> • Practical and theoretical examples in the basic rules of the consideration, analysis and interpretation of the genre of architecture • Methods in history of art and academic approaches of the corresponding schools Historical Buildings Construction: <ul style="list-style-type: none"> • Introduction to basic research and the techniques of solid and wooden constructions as well as ceiling and vault designs. In addition, project-related elective modules are offered with individual topics.					
Teaching format Lecture / seminar					
Requirements for attending course None					
Examination format Submission of the required study work (term paper, design, presentation/recital) accordingly in elective module MM 6.1 and in elective module MM 6.2.					
Requirement for the awarding of credit points Completion of the semester assignments, each with a minimum grade of sufficient (4.0). The grade for the module consists of 50% of the individual grades for the study work in elective module MM 6.1 (3 CP) and the grade for the study work from elective module MM 6.2 (3 CP). The elective modules can be chosen freely from the offer.					
Weighting of the grade for the final grade 6/120 (5%)					
Module leader(s) and principal tutor(s) Univ.- Prof. Dipl.-eng. Hildegard Schröteler-von Brandt / Univ.- Prof. Dr. Dr. Karl Kiem					
Additional information: ----					

MM 7 - Elective Module B - Building Theory and Design					
	Workload	Credits	Study semester	Frequency of the offer	Duration
	180 h	6 CP (2x3 CP)	1st semester	In the winter	1 semester
Teaching MM 7.1: Lecture Seminar/Tutorial MM 7.2: Lecture Seminar/Tutorial		Contact time 2 SPW / 30 h 1 SPW / 15 h 2 SPW / 30 h 1 SPW / 15 h	Home study 45h 45h		Planned size of group 25
Learning outcomes / competencies The students are equipped to gain further knowledge in the areas of Building Theory and Design. The overlaying of virtual spatial experience (Google Glass) and tactile spatial experience (the natural and geometric environment) is studied and simulated. In addition to the conventionally-prepared repertoire regarding the style, colour and design images, the possibilities concerning computer-supported design are considered in order to be able to encounter the particular problems presented by a task on a varied basis. Key competencies: Preparation of the academic results and presentation of the results in the form of a recital.					
Contents In addition to the current research projects, the elective modules for course group B, "Building Theory and Design", are offered, among others, in the following topic areas: Construction in Structurally Weak Regions Regional Building: <ul style="list-style-type: none"> • The highlighting of backgrounds for the development of regional forms of building and settlement • The analysis and evaluation of regional forms of building and settlement • The use of the results of the analysis for urban development concepts Digital Model Making: <ul style="list-style-type: none"> • The conveying of the necessary principles for the independent use and appropriate application of digitally-managed model-making machinery • Deepening of the knowledge conveyed through actual application in targeted experiments and their evaluation Design Processes of Architectural Planning <ul style="list-style-type: none"> • virtual spatial experience / tactile spatial experience • digital (projection) aura / tactile (architecture) aura • digital (projection) spatial borders / tactile (architecture) spatial borders • digital (projection) spatial boundary / tactile (architecture) spatial boundary • digital (projection) construct / tactile (architecture) construct Graphics and Design for Architects Representational Techniques for Architects: <ul style="list-style-type: none"> • differing techniques from the drawing to the computer model • new media and computer tools for vector-oriented drawing programs to videos and interactive DVDs In addition, project-related elective modules are offered with individual topics.					
Teaching format Lecture / seminar					

Requirements for attending course None
Examination format Submission of the required study work (term paper, design, presentation/recital) accordingly in elective module MM 7.1 and in elective module MM 7.2.
Requirement for the awarding of credit points Completion of the semester assignments, each with a minimum grade of sufficient (4.0). The grade for the module consists of 50% of the individual grades for the study work in elective module MM 7.1 (3 CP) and the grade for the study work from elective module MM 7.2 (3 CP). The elective modules can be chosen freely from the offer.
Weighting of the grade for the final grade 6/120 (5%)
Module leader(s) and principal tutor(s) Univ.- Prof. Dipl.-eng. Peter Karle / Univ.- Prof. Dipl.-eng. Michael Lenhart / Univ.- Prof. Dipl.-eng. Götz Stöckmann / NN
Additional information: ---

MM 8 - Elective Module C - Construction and Technology					
	Workload	Credits	Study semester	Frequency of the offer	Duration
	180 h	6 CP (2x3 CP)	3rd semester	In the winter	1 semester
Teaching MM 8.1: Lecture Seminar/Tutorial MM 8.2: Lecture Seminar/Tutorial		Contact time 2 SPW / 30 h 1 SPW / 15 h 2 SPW / 30 h 1 SPW / 15 h	Home study 45h 45h		Planned size of group 25
Learning outcomes / competencies The goal of the elective element is to be able to understand, analyse and optimise complex building structures through the development of independent approaches in the process of design and implementation and to integrate these into the individual plans within a comprehensive process of design, taking the supporting structures, technical and economic factors into account. Key competencies: Preparation of the academic results and presentation of the results in the form of a recital.					
Contents In addition to the current research projects, the elective modules for course group C, "Construction and Technology", are offered, among others, in the following topic areas: Traditional, Advanced and Innovative Materials: <ul style="list-style-type: none"> • Production and specific attributes, innovative character • Material and architecture, interdependence between building materials, construction and design • Area of use within the building framework (new construction and PBB) • Fire safety, corrosion protection, maintenance and care • Criteria for the selection of construction materials • Ecology, sustainability, environmental influences, health • Environmental effects and costs in the life cycle Building Services Systems: <ul style="list-style-type: none"> • The planning of the sanitary engineering systems, the heating, ventilation and technical air conditioning systems and the technical electrical systems (bus systems, communications technology, electrical wiring systems) Energy-Efficient and Climate-Neutral Building: <ul style="list-style-type: none"> • Software-supported building audits • Results-based analysis of the technical systems, building physics, building construction • Use potential of renewable energy • Solar technology, photovoltaic systems Light planning: <ul style="list-style-type: none"> • Interior lighting concepts • Façade and urban spaces • Daylight calculation Technical installations in specialist buildings: <ul style="list-style-type: none"> • Design of heating, ventilation, air conditioning, sanitation systems, electrical installations, telecommunications, hazard warning systems, access control, control engineering, building automation, fire alarm-, smoke extraction- and fire extinguishing systems • Facility management in high-installation buildings Building physics: <ul style="list-style-type: none"> • Humidity protection • Thermal insulation • Sound proofing, room acoustics 					

<ul style="list-style-type: none"> • Fire safety • Energy and climate concepts <p>Building services with construction with existing buildings:</p> <ul style="list-style-type: none"> • Analysis of the existing building services systems • Application of the knowledge of building services under harsh framework conditions in cramped, poorly designed rooms <p>In addition, project-related elective modules are offered with individual topics.</p>
<p>Teaching format Lecture / seminar</p>
<p>Requirements for attending course None</p>
<p>Submission of the required study work (term paper, design, presentation/recital) accordingly in elective module MM 8.1 and in elective module MM 8.2.</p>
<p>Requirement for the awarding of credit points Completion of the semester assignments, each with a minimum grade of sufficient (4.0). The grade for the module consists of 50% of the individual grades for the study work in elective module MM 8.1 (3 CP) and the grade for the study work from elective module MM 8.2 (3 CP). The elective modules can be chosen freely from the offer.</p>
<p>Weighting of the grade for the final grade 6/120 (5%)</p>
<p>Module leader(s) and principal tutor(s) Univ.- Prof. Dipl.-eng. Peter Karle / Univ.- Prof. Dipl.-eng. Thomas Dibelius / Univ.- Prof. Dr.-eng. Lamia Messari-Becker / Univ.- Prof. Dipl.-eng. Sibille Wirtz</p>
<p>Additional information: Information concerning the specialist literature and the research possibilities is provided on a topic-related basis at the start of the course.</p>

MM9 – Elective Model D - Building Planning and Construction Management					
	Workload	Credits	Study semester	Frequency of the offer	Duration
	180 h	6 CP (2x3 CP)	3rd semester	In the winter	1 semester
Teaching MM 9.1: Lecture Seminar/Tutorial MM 9.2: Lecture Seminar/Tutorial		Contact time 2 SPW / 30 h 1 SPW / 15 h 2 SPW / 30 h 1 SPW / 15 h	Home study 45h 45h		Planned size of group 25
Learning outcomes / competencies The module applies knowledge on the coordination and control of the temporal processes in the planning and completion of the costs planning focusing on construction with existing buildings, and strengthens this in consideration of typically occurring problems, such as the securing of the existing buildings, the ongoing operations, the protection of historic monuments, etc. In addition, topics connected to urban development, demography and the real estate sector are also offered. The contents should open up further professional fields that extend beyond the classic study of architecture. Key competencies: Preparation of the academic results and presentation of the results in the form of a recital.					
Contents In addition to the current research projects, the elective modules for course group D, "Building Planning and Construction Management", are offered, among others, in the following topic areas: Schedule and sequence planning: <ul style="list-style-type: none"> • The forward-projection of basic schedules, through to the refinement according to building components, etc. • Construction sequences on existing buildings, section-based renovation Cost planning: <ul style="list-style-type: none"> • Financing requirements, tenders, financial support, building operating costs, building maintenance costs, costing processes • Completion of costing plans, controlling and steering of costs (new build and PBB) • Management of follow-up work Construction with existing buildings with specialist requirements: <ul style="list-style-type: none"> • Construction with existing buildings with ongoing use (room or story-wise design, tenant support, tenant implementations, etc.) • Construction with existing buildings under harsh conditions of completion: Building sections, building interruptions, special usage specifications • Construction site logistics with existing buildings: Securing of buildings for temporary load conditions, replacement of building parts, interim storage of construction materials, transport materials, demolition processes Building law: <ul style="list-style-type: none"> • Liability risks with existing buildings • Configuration and completion of building contracts (issuing of building contracts, transfer of risks pertaining to existing buildings, etc.) • International planning and building • In-depth building and planning law Planning law: <ul style="list-style-type: none"> • The general framework conditions of urban development: Demography, economic and social factors • Urban and regional economic contexts of urban development 					

<ul style="list-style-type: none"> • Urban development location assessment • Housing market development • Support possibilities for urban developments <p>Barrier-free building:</p> <ul style="list-style-type: none"> • Requirements of people with disabilities • Reduction of barriers • Implementation of construction measures • Barrier-free existing buildings <p>In addition, project-related elective modules are offered with individual topics.</p>
<p>Teaching format Lecture / seminar</p>
<p>Requirements for attending course None</p>
<p>Examination format Submission of the required study work (term paper, design, presentation/recital) accordingly in elective module MM 9.1 and in elective module MM 9.2.</p>
<p>Requirement for the awarding of credit points Completion of the semester assignments, each with a minimum grade of sufficient (4.0). The grade for the module consists of 50% of the individual grades for the study work in elective module MM 9.1 (3 CP) and the grade for the study work from elective module MM 9.2 (3 CP). The elective modules can be chosen freely from the offer.</p>
<p>Weighting of the grade for the final grade 6/120 (5%)</p>
<p>Module leader(s) and principal tutor(s) Prof. Dr.-eng. Bert Bielefeld / Prof. Dr. jur. Falk Würfele / Univ.- Prof. Dr.-eng. Hildegard Schröteler-von Brandt / N.N.</p>
<p>Additional information: ---</p>

MM 10 - Elective Module - faculty/departmentally spanning module					
	Workload	Credits	Study semester	Frequency of the offer	Duration
	180 h	6 CP (2x3 CP)	4th semester	In the winter	1 semester
Teaching MM 10.1: Lecture Seminar/Tutorial MM 10.2: Lecture Seminar/Tutorial		Contact time 2 SPW / 30 h 1 SPW / 15 h 2 SPW / 30 h 1 SPW / 15 h	Home study 45h 45h		Planned size of group 25
Learning outcomes / competencies In addition to the modules from the Department of Architecture, the students can select two further faculty/departmentally-spanning elective modules / elective module elements according to their personal preference/interest from the courses offered in Faculties I- IV. Key competencies: Preparation of the academic results and presentation of the results in a recital.					
Contents The current research projects from Faculty II are supplemented every semester with additional faculty-spanning topics which are completed independently and allow for a differing academic focus. It is also possible to deepen the individual points of focus and self-posed academic questions in other topic areas.					
Teaching format Lecture / seminar/ workshop					
Requirements for attending course None					
Examination format Submission of the required study work (term paper, design, presentation/recital) accordingly in elective module MM 10.1 and in elective module MM 10.2.					
Requirement for the awarding of credit points Completion of the semester assignments, each with a minimum grade of sufficient (4.0). The grade for the module consists of 50% of the individual grades for the study work in elective module MM 10.1 (3 CP) and the grade for the study work from elective module MM 10.2 (3 CP). The elective modules can be chosen freely from the offer.					
Weighting of the grade for the final grade 6/120 (5%)					
Module leader(s) and principal tutor(s) N.N.					
Additional information: ---					

MM 11 - Compulsory module - Design 1					
	Workload	Credits	Study semester	Frequency of the offer	Duration
	360 h	12CP	1st semester	In the winter	1 semester
Teaching MM 11: Lecture MM 11: Tutorials / workshop		Contact time 1 SPW / 15 h 6 SPW / 90 h	Home study 255 h		Planned size of group 15
<p>Learning outcomes / competencies</p> <p>The goal is to achieve the confident and independent handling of people and space in terms of the realisation of high quality interior and exterior space. Building on the ability gained to conceptualise buildings in the Bachelor course, the design and the associated process of design for existing buildings should be learned and managed in terms of its full complexity with all of its partial aspects. Training is provided in the systematic analysis of all the conditions, framework conditions and requirements surrounding a design task. Support should be provided in enabling the students to develop their own form of artistic and design expression and to provide them with training in developing the related degree of socially-oriented responsibility. Project partners from the Technical, Construction Lore and Design disciplines are consulted during the study.</p> <p>The process of design for existing buildings is a key context of the Master Course.</p> <p>Considerations concerning the maintenance, configuring, etc., the functional requirements in connection with the materials, and construction-related considerations regarding the necessary retrofitting and development of a basic individual approach to architectural design should lead to a coherently balanced and configured design to which the principles of self-criticism have been applied.</p> <p>Key competencies:</p> <p>Presentation of the results of the design and the ability to discuss the presentation and assessment of different design-related approaches.</p>					
<p>Contents</p> <p>Several design-related topics are offered every winter semester depending on the number of participants; these are completed independently and allow for differing focal points within the B and C areas of teaching.</p>					
<p>Teaching format</p> <p>Independently completed design project (in new build or PBB) with consultation</p>					
<p>Requirements for attending course</p> <p>None</p>					
<p>Examination format</p> <p>Submission and presentation (recital) of the design</p>					
<p>Requirement for the awarding of credit points</p> <p>The grade for the module consists of the work completed during the course (the design) and the oral examination (presentation of the design). Completion of the semester assignments, each with a minimum grade of sufficient (4.0).</p>					
<p>Weighting of the grade for the final grade</p> <p>12/120 (10%)</p>					
<p>Module leader(s) and principal tutor(s)</p> <p>Univ.- Prof. Dipl.-eng. Peter Karle / Univ.- Prof. Dipl.-eng. Thomas Dibelius / Univ.- Prof. Dipl.-eng. Ulrich Exner / Univ.- Prof. Dipl.-eng. Sibylle Käppel-Klieber / Univ.- Prof. Dipl.-eng. Michael Lenhart / Univ.- Prof. Dipl.-eng. Sibille Wirtz</p>					
<p>Additional information:</p> <p>---</p>					

MM 12 - Compulsory module - Design 2 Integrated Project					
	Workload	Credits	Study semester	Frequency of the offer	Duration
	720 h	24CP (2x12 CP)	2nd and 3rd semester	Starts in the summer sem.	2 semesters
Teaching 2.Semester MM 12: Lecture MM 12: Tutorial / workshop 3rd semester MM 12: Lecture MM 12: Tutorials / workshop		Contact time 1 SPW / 15 h 6 SPW / 90 h 1 SPW / 15 h 6 SPW / 90 h	Home study 255 h in the 2nd semester 255 h in the 3rd semester		Planned size of group 15
Learning outcomes / competencies In the Integrated Project, students should demonstrate that they can understand complex academic questions regarding the design process and that they can develop and present convincing approaches to solutions with examples. The understanding of the relationships and the management of such processes is demonstrated in an individual result. Key competencies: <ul style="list-style-type: none"> • Presentation of the results • Practising practically-oriented group work / the ability to work on a cooperative basis in the group. • Resolution of conflicts and structuring of the work process 					
Contents The Integrated Project serves the purpose of the theoretical as well as the planning and design-related addressing of sophisticated tasks in the topic of construction with existing buildings, for example. In addition to the orientation to the content and strengthening of the academic knowledge, the conveying of the methodical expertise also takes place. The Integrated Project consists of two parts: the actual completion of the project and the conveying of specialist integrated contents relating to the project. With this project-related specialist content, specialist questions from the topic of the project are addressed and dealt with in the form of a targeted conveying of the information, a consultation, and the shared handling of special topics. The Integrated Project generally consists of an architectural design or an in-depth academic discussion concerning a particular problem or issue. The seminar supervision takes place with at least two professors from different specialist disciplines and with group and/or individual supervision. In the scope of the Integrated Project MM 12, topic-related excursions are also offered.					
Organisation The Integrated Project is generally supervised by 2 professors. In addition to the issuer, they also choose an additional professor; depending on the orientation of the project, they come from the field of technical subjects (subject group C: Building Physics, Structural Systems, Building Ecology, etc.), economic subjects (subject group D: e.g. Building Economics), or urban development (with approval from the examination committee), from another department (for example, Building Engineering, Electrical Engineering, Information Technology, Economics, Social Sciences) or from an external circle of individuals. An intermediate presentation and a final colloquium open to the department takes place. The Integrated Project can be completed as group work.					
Teaching format Independently completed design project (in new build or PBB) with consultation					
Requirements for attending course None					
Examination format					

Submission and presentation (recital) of the design
Requirement for the awarding of credit points The grade for the module consists of the work completed during the course (the design) and the oral examination (presentation). Completion of each of the semester assignments with a grade of at least 4.0 (sufficient).
Weighting of the grade for the final grade 24/120 (20%)
Module leader(s) and principal tutor(s) All professors in the Department of Architecture
Additional information: At the end of the first semester (2nd study semester), an interim presentation and a partial accreditation of the Integrated Project takes place. The required scope of performance for this partial accreditation is determined at the start of the module by the corresponding module supervisor and corresponds to 12 CP which are awarded if the completion of the first part of the project receives a grade of at least "acknowledged" (4.0). The final grade for the Integrated Project is awarded subsequent to the completion of the second half of the project (12 CP).

MM 13 - Compulsory module - Improvisational Design					
	Workload 180 h	Credits 6CP (3x2 CP)	Study semester 1st to 4th semester	Frequency of the offer Winter and summer sem.	Duration 1.5 weeks per design (4.5 weeks)
Teaching MM 13.1 tutorial / colloquium MM 13.2 tutorial / colloquium MM 13.3 tutorial / colloquium		Contact time 15 h 15 h 15 h	Home study 45 h 45 h 45 h		Planned size of group 25
Learning outcomes / competencies In a time-limited period, the students should hone and document their abilities regarding design, construction, etc. and present their design-related intentions. Key competencies: Presentation of the results of the design and the ability to discuss the presentation and assessment of differing conceptual approaches.					
Contents An improvisational design consists of a design task to be completed in a short time frame (up to one week) in a situation relating to an existing building which is not generally supervised. Participation in national and international design workshops is recommended in particular.					
Teaching format Three independently completed improvisational designs (in new build or PBB), possibly in the form of design workshops					
Requirements for attending course None					
Examination format Submission and presentation (recital) of the improvisational design					
Requirement for the awarding of credit points The grade for the module consists of the work completed during the course (the improvisational design) and the oral examination (presentation) for each improvisational design. Completion of the semester assignments, each with a minimum grade of sufficient (4.0). Two credit points are awarded					
Weighting of the grade for the final grade 6/120 (5%)					
Module leader(s) and principal tutor(s) All professors in the Department of Architecture					
Additional information: ---					

MM 14 - Compulsory Module - Master Thesis					
	Workload	Credits	Study semester	Frequency of the offer	Duration
	540 h	18 CP	4th semester	Each semester	3 month period of completion
Teaching None		Contact time as required	Home study 540 h		Planned size of group 25
Learning outcomes / competencies					
Art. 22, section 1 of the Examination Regulations: 1. The Master Thesis is a final thesis. 2. Students should demonstrate that they are able to independently work on a task belonging to their technical field within a prescribed period, both regarding its technical details and also regarding the interdisciplinary connections according to the academic and practical requirements of the degree programme.					
Art. 22, section 10 of the Examination Regulations: 1. The oral colloquium supplements the Master Thesis. 2. It is held to determine whether the student is able to orally present the results of the Master Thesis, its technical bases, its interdisciplinary relations and the relations that go beyond the subject, to independently provide reasons for that and to estimate the importance of the Thesis for practice and research. 3. The colloquium will be held as an oral examination and will last at least 30 to a maximum of 45 minutes.					
Contents					
Art. 22, section 1 of the Examination Regulations: 3. The Master Thesis can be prepared as a conceptual work, a theoretical work or as a combination of both. 4. It consists of the Master Thesis mentioned in sentence 3 and an oral colloquium.					
Teaching format					
Art. 22, sentences 3-4 of the Examination Regulations					
Requirements for attending course					
Art. 21, section 1 of the Examination Regulations: Students who have successfully completed four of the five compulsory modules (MM 1 - MM 5) and four of the five elective modules (MM 6 - MM 10) and the modules MM 11 – MM 13 (Design 1 and Design 2 "Integrated Project" as well as the improvisational concepts).					
Examination format					
Submission and presentation (recital) of the presentation or the academic work.					
Requirement for the awarding of credit points					
Art. 23, section 4 of the Examination Regulations: a Master Thesis shall be deemed to be passed if it was assessed at least with a grade of "sufficient".					
Weighting of the grade for the final grade					
Art. 23, section 6 of the Examination Regulations: 1. The grade of the Master Thesis will be created from the arithmetic mean of the grades awarded by the two examiners. 2. If one of the examiners awards a grade of "fail" (5.0) for the Master Thesis, a third party expert will be appointed. Further details: please refer to the Examination Regulations. 18/120 (15%)					
Module leader(s) and principal tutor(s)					
All professors in the Department of Architecture					
Additional information:					
