

# Module handbook

for a consecutive study programme in

# Advanced Architecture – From Urban Design to Building Construction

Master of Science (M.Sc.)

Faculty 1: Architektur · Bauingenieurwesen · Geomatik –  
Architecture · Civil Engineering · Geomatics

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## 1. Programme learning outcomes

### General Qualification Profile of the Programme

The study programme "Advanced Architecture – From Urban Design to Building Construction" (from here on abbreviated: Advanced Architecture) is designed as a two-year full-time course of study and offers a master's degree (Master of Science).

The application-oriented degree programme offers a project-oriented curriculum on the basis of the latest scientific findings for the fields of work of urban development, new construction and building in existing contexts.

At the centre of the study programme there is the holistic view of the subject areas of "architecture and design" and "architecture and construction" in their diverse interrelationships — unlike in many other foreign countries. This takes place at all scale levels, from the design of an urban context to the formation of a constructive detail.

The focus lies on identifying the specific interrelationships between designing and constructing and on bringing them together in a planning process, which is mastered independently.

The overall objective is to develop designs that respond to the Sustainable Development Goals (SDGs) of the 2030 Agenda of the United Nations, in particular Goal 9: Industry, Innovation and Infrastructure, Goal 11: Sustainable Cities and Communities, Goal 12: Responsible Consumption and Production, and Goal 13: Climate Action.

With this in mind, the Advanced Architecture degree programme promotes the design of future-oriented, sustainable projects from concept to detail, particularly in collaboration with the FFin (Frankfurt Research Institute).

The Master's programme qualifies graduates for independent, supervisory and managing activities in all areas of planning and building.

Possible career fields are fundamentally in the area of freelance work or alternatively employment in a leading position. At the same time, the Advanced Architecture degree programme provides comprehensive qualifications for the fields of urban planning, new construction and building in existing structures, as well as specific qualifications for the fields of urban repair and monument preservation, and the development of constructions in wood, efficient facades and lightweight constructions.

### Knowledge and Understanding

- Graduates are able to demonstrate their knowledge of urban design, the design of new buildings and building in existing contexts after completing the degree, which builds on the bachelor's level and significantly deepens and expands it. This can be application- or research-oriented, but always with a special focus on the respective interrelationship of design and constructive implementation. They are able to discuss basic and special aspects, possibilities and limits of innovative, sustainable, resource-optimised and climate-appropriate planning and building and to interpret the conceptual fields and doctrinal opinions on this. In doing so, they can distinguish and compare historical, political and social as well as economic contexts in one or more self-selected areas of specialization with reference to architecture.
- Graduates are further able to use their knowledge and understanding as a basis for developing and/or applying their own concepts for design and construction, founded on a critical understanding of the most important theories, principles and methods from the field of design and construction. Their broad, detailed and critical understanding at the cutting edge of knowledge as generalists with self-selected areas of specialization includes an in-depth knowledge of innovation, sustainability, optimisation of resource use and climate-appropriate construction.
- In addition, they can evaluate the correctness of different conceptual and implementation approaches on the basis of scientific and methodological reasoning and, with the help of these considerations, generate practice-relevant and scientifically differentiated solutions in a multidisciplinary manner, taking into account well-founded social, scientific and ethical findings.

**Use, application and generation of knowledge**

- Graduates are able to apply their knowledge, understanding and problem-solving skills to new and unfamiliar situations that have a broader or multidisciplinary connection to their field of study.
- They can also create solution approaches for architectural concepts independently on the basis of limited information and contribute to the solution of complex design, construction and structural tasks in an application-oriented manner in multidisciplinary teams.
- They can further derive research questions on concepts ranging from architectural design to constructive detail and use, explain and critically interpret scientific methods for this purpose with reference to current research questions.
- They are also able to independently acquire new knowledge and skills in order to conceive and carry out application-oriented planning and construction projects largely on their own responsibility in terms of design, space and technical/constructive aspects.

**Communication and cooperation**

- Graduates are able to discuss alternative, theoretically justifiable results and solutions for architectural projects with a high degree of complexity, from design to detail, with representatives of different academic and non-academic fields of activity, from higher education to crafts.
- They are also able to develop clearly structured and independent planning and building processes, from design to planning to execution, and to involve participants in a goal-oriented manner in design and technical tasks, taking into account the respective group and project situation.
- Furthermore, they can integrate and transfer their own and other people's building ideas and conceptions into a building design process, taking into account essential situational and structural framework conditions, and independently evaluate, delegate and guide appropriate action and project steps.


**Scientific self-concept and professionalism**

- Graduates develop a professional self-concept that is oriented towards the goals and standards of professional action, above all in practice, but also in science; thus, the needs of the client as well as of society are to be determined in the design of buildings, but also to be questioned in order to design adequate architectural solutions for these needs in terms of service, sustainability and quality, taking into account design, cost factors and building regulations, among others.
- They can justify their professional actions with theoretical and methodological knowledge in the field of architecture in order to develop alternative architectural design solutions in accordance with the essential respective framework conditions and to reflect on decisions responsibly and ethically.
- They can furthermore independently assess architectural situations on the basis of their technical knowledge, draw adequate conclusions from them and critically reflect on design implementations in relation to social expectations and consequences and further develop their professional actions.
- They are able to assess their own abilities as well as to use factual design and decision-making freedoms to independently determine complex architectural relationships of cause and effect and to further develop architectural contexts and problems with foresight.
- They can also critically reflect on their professional actions in relation to societal expectations and consequences and further develop their professional actions so that the results of science as well as the practical, craft-based knowledge of the building industry can be constantly reconciled in the best possible way.
- Through their knowledge, graduates can contribute to the further development of changing professional fields, tasks and socially relevant issues in planning and building and adapt to these developments. Graduates are also

qualified to gain further academic qualifications (doctorate) with the Master's degree. The degree programme offers graduates the opportunity to gain further qualifications in the field of planning and building and meets the international standards of the UNESCO/UIA Charter for Architectural Education.

Further general information is available at: <https://www.frankfurt-university.de/en/studies/master-programs/advanced-architecture-msc/for-prospective-students/>

## 2. Recommended course time table

						 FRANKFURT UNIVERSITY OF APPLIED SCIENCES
Advanced Architecture (M.Sc.)						ECTS points (CP)
Semester 4	Master-Thesis with Colloquium 30 CP					30
Semester 3	Specialization Project 10 CP		Existing Contexts – Design and Construction 10 CP	Compulsory elective module 4, to be selected from the modules WM 1E to WM 7E 5 CP	Compulsory elective module 5, to be selected from the modules WM 1E to WM 7E 5 CP	30
Semester 2	Lecture Series Construction 5 CP	International Design Project 5 CP	New Buildings – Design and Construction 10 CP	Compulsory elective module 2, to be selected from the modules WM 1E to WM 7E 5 CP	Compulsory elective module 3, to be selected from the modules WM 1E to WM 7E 5 CP	30
Semester 1	Lecture Series Design 5 CP	Impromptu Designs 5 CP	Urban Contexts – Design and Construction 10 CP	International Design and Building Project 5 CP	Compulsory elective module 1, to be selected from the modules WM 1E to WM 7E 5 CP	30

## 3. Module and examination overview

Nr.	Module title	ECTS Points [CP]	Weighting	Duration [Sem.]	Examination Type	Language
1 <sup>st</sup> Semester						
LD	Lecture Series Design	5	5	1	Oral examination (at least 15, at most 20 minutes)	English
ID	Impromptu Designs	5	5	1	Portfolio examination consisting of: 1. Project work Impromptu Design 1 (submission period 2 weeks) with presentation (at least 5, at most 10 minutes), weighting 20% 2. Project work Impromptu Design 2 (submission period 2 weeks) with presentation (at least 5, at most 10 minutes), weighting 20% 3. Project work Impromptu Design 3 (submission period 2 weeks) with presentation (at least 5, at most 10 minutes), weighting 20% 4. Project work Impromptu Design 4 (submission period 2 weeks) with presentation (at least 5, at most 10 minutes), weighting 20% 5. Project work Impromptu Design 5 (submission period 2 weeks) with presentation (at least 5, at most 10 minutes), weighting 20%	English



Nr.	Module title	ECTS Points [CP]	Weighting	Duration [Sem.]	Examination Type	Language
					The examination is passed if at least 50% of the possible score has been achieved.	
UDC	Urban Contexts – Design and Construction	10	10	1	Project work (submission period 12 weeks) with presentation (at least 10, at most 20 minutes)	English
IDBP	International Design and Building Project	5	5	1	Project work (submission period 12 weeks) with presentation (at least 10, at most 20 minutes)	English
<b>2<sup>nd</sup> Semester</b>						
LC	Lecture Series Construction	5	5	1	Oral examination (at least 15, at most 20 minutes)	English
IDP	International Design Project	5	5	1	Project work (submission period 12 weeks) with presentation (at least 10, at most 20 minutes)	English
NDC	New Buildings – Design and Construction	10	10	1	Project work (submission period 12 weeks) with presentation (at least 10, at most 20 minutes)	English
<b>3<sup>th</sup> Semester</b>						
SP	Specialization Project	10	10	1	Project work (submission period 12 weeks) with presentation (at least 10, at most 20 minutes)	English
EDC	Existing Contexts – Design and Construction	10	10	1	Project work (submission period 12 weeks) with presentation (at least 10, at most 20 minutes)	English
<b>4<sup>th</sup> Semester</b>						
T	Master-Thesis with Colloquium	30	60	1	Master-Thesis (submission period 18 weeks) with Colloquium (at least 30,	English

Nr.	Module title	ECTS Points [CP]	Weighting	Duration [Sem.]	Examination Type	Language
					at most 45 minutes)	
<b>Compulsory Elective Modules</b>						
WM 1E	Climate Design	5	5	1	Written homework assignment (submission period 6 weeks) with presentation (at least 10, at most 20 minutes)	English
WM 2E	Rehabilitate, Reuse, Add-on	5	5	1	Written homework assignment (submission period 6 weeks) with presentation (at least 10, at most 20 minutes)	English
WM 3E	Urban Design and Public Space	5	5	1	Written homework assignment (submission period 6 weeks) with presentation (at least 10, at most 20 minutes)	English
WM 4E	Digital Basics	5	5	1	Written homework assignment (submission period 6 weeks) with presentation (at least 10, at most 20 minutes)	English
WM 5E	Construction	5	5	1	Written homework assignment (submission period 6 weeks) with presentation (at least 10, at most 20 minutes)	English
WM 6E	Material	5	5	1	Written homework assignment (submission period 6 weeks) with presentation (at least 10, at most 20 minutes)	English
WM 7E	Experimental Design	5	5	1	Written homework assignment (submission period 6 weeks) with presentation (at least	English

<b>Nr.</b>	<b>Module title</b>	<b>ECTS Points [CP]</b>	<b>Weighting</b>	<b>Duration [Sem.]</b>	<b>Examination Type</b>	<b>Language</b>
					10, at most 20 minutes)	

**Module LD: Lecture Series Design**

Module title	Lecture Series Design
Module number	LD
Module code	
Study programme	Advanced Architecture (M.Sc.)
Module usability	In particular for the design modules within this study programme as Impromptu Design, International Design and Building Project, Urban Contexts – Design and Construction, International Design Project, New Buildings – Design and Construction, and Existing Contexts – Design and Construction.
Module duration	One semester
Recommended semester	1st semester
Module type	Compulsory module
ECTS-Credit Points (CP) / Workload (hours)	5 CP / 150 hours
Recommended previous knowledge	None
Prerequisites for participation in the module and the module examination	None
Prerequisites for the acquisition of credit points:	a. None
a. preliminary examination as module examination prerequisites	
b. Module examination	b. Oral examination (at least 15, at most 20 minutes)
Learning outcomes and skills	<p><b>Knowledge and Understanding:</b></p> <p>The students have a detailed knowledge in the thematic field of Architectural Design. The focus here is primarily on the manifold parameters of architectural design which can respond convincingly to today's requests. These reach from designing in response to climate, to our material resources, to an efficient use of energy, to designing in response to a specific site, and context, to designing in response to the needs of users, and to designing jointly with them. This includes the knowledge of concepts like general principles for spatial planning, composition principles, spatial exploration principles and material concepts, the later including the effects of the selection of materials on the</p>

	<p>construction, the shape, and the usability of a space. The students have an in-depth understanding of how essential these parameters of design are, and to which extent they determine each other reciprocally. They are able to use their knowledge and understanding as a basis for developing and/or applying their own concepts for design and construction, founded on a critical understanding of the most important theories, principles and methods from the field of design and construction. Their broad, detailed and critical understanding at the cutting edge of knowledge as generalists with self-selected areas of specialization includes an in-depth knowledge of innovation, sustainability, optimization of resource use and climate-appropriate construction.</p> <p><b>Use, application, and generation of knowledge:</b> Students are able to apply the gained knowledge and understanding as well as their problem-solving skills to develop architectural designs in several formats adequate to climatic contexts, to our material resources, to an efficient use of energy, as well as to the specificity of a site, and the needs of the user but also to evaluate them and to make comprehensive decisions on the grounds of the specific contexts and conditions. They are also able to independently acquire new knowledge and skills in order to conceive and carry out application-oriented planning and construction projects largely on their own responsibility in terms of design, space and technical/constructive aspects.</p> <p><b>Communication and Cooperation:</b> Furthermore, the students are able to exchange problems and solutions with expert representatives and outsiders on a technically advanced level, as well as to identify specific requirements of each work case and to communicate the motivations for their concepts and designs developed for this purpose in a clear and comprehensible form.</p> <p><b>Scientific self-image / professionalism:</b> The students develop a professional self-image that is guided by the goals and standards of professional action within the fields of design and construction, understanding the manifold relationships between the design ideals and the reality/realities of construction into which these ideas have been translated and are still being translated. They recognize appropriate framework conditions of professional, responsible agency and provide ethical justification for their decisions.</p>
Module contents	Lecture Series Design: Lecture series on spatial design
Module teaching methods	Lecture
Module language	English
Module availability	Each summer semester
Module coordination	Prof. Stefanie Eberding
Comments	None

**Unit description: Module LD: Lecture Series Design**

Unit title	Lecture Series Design
Code	
Module title	Lecture Series Design
Unit contents	Contents of the lecture series are the way in which architectural designs are developed and elaborated, starting with the spatial design concept, through the conceptual opening up of new spatial resources and into the definition of adequate materials. This is concerned both with the urban design, the (re)design of existing structures and conversion of existing buildings as well as with the design of new buildings. Both historically different developments are considered, beginning with the building without architects in climatically different climate zones, as well as culturally and geographically oriented approaches up to the present time. Here in particular the focus is on current design principles and theories of important architects and urban architects of the 20th and 21st century.
Unit teaching methods	Lecture
Semester periods (hours) per week	4 SWS
Unit workload (hours)	150h
Class hours (h)	60h
Total time of examination incl. preparation (h)	30h
Total time of individual study (h)	60h
Total time of practical training (h)	0h
Unit language	English
Lecturer	Prof. Stefanie Eberding, Prof. Dipl.-Ing. Claudia Lüling, Prof. Anke Wünschmann, Prof. Dipl.-Ing. Annet Zinsmeister, substitute professor - Advanced Architecture
Recommended reading	<ul style="list-style-type: none"> <li>• Baker, Geoffrey H. (1996): Design Strategies in Architecture: An Approach to the Analysis of Form, 2. Ed London E &amp; FN Spon;</li> <li>• Manual of recycling (2019): buildings as sources of materials, Hillebrandt, Annette, München: Detail Business Information GmbH</li> </ul> <p>In each case in the most current edition. Further literature will be announced in the respective course.</p>
Assessment type and form of the unit	
Assessment grading of the unit	
Unit comments	None

**Module ID: Impromptu Designs**

Module title	Impromptu Designs
Module number	ID
Module code	
Study programme	Advanced Architecture (M.Sc.)
Module usability	In particular for the design modules within this study programme as International Design and Building Project, Urban Contexts – Design and Construction, International Design Project, New Buildings – Design and Construction, and Existing Contexts – Design and Construction as well as the Master-Thesis.
Module duration	One semester
Recommended semester	1st semester
Module type	Compulsory module
ECTS-Credit Points (CP) / Workload (hours)	5 CP / 150 hours
Recommended previous knowledge	None
Prerequisites for participation in the module and the module examination	None
Prerequisites for the acquisition of credit points:	a. None
a. preliminary examination as module examination prerequisites	
b. Module examination	<p>b. Portfolio examination consisting of:</p> <ol style="list-style-type: none"> <li>1. Project work Impromptu Design 1 (submission period 2 weeks) with presentation (at least 5, at most 10 minutes), weighting 20%</li> <li>2. Project work Impromptu Design 2 (submission period 2 weeks) with presentation (at least 5, at most 10 minutes), weighting 20%</li> <li>3. Project work Impromptu Design 3 (submission period 2 weeks) with presentation (at least 5, at most 10 minutes), weighting 20%</li> <li>4. Project work Impromptu Design 4 (submission period 2 weeks) with presentation (at least 5, at most 10 minutes), weighting 20%</li> <li>5. Project work Impromptu Design 5 (submission period 2 weeks) with presentation (at least 5, at most 10 minutes), weighting 20%</li> </ol> <p>The examination is passed if at least 50% of the possible score has been achieved.</p>

Learning outcomes and skills	<p><b>Knowledge and understanding</b> Students are able to define and interpret the special features, limits, terminologies and schools of thought in architecture. They have a broad, detailed and critical understanding of the most up-to-date state of the development and design of spatial concepts and they are able to solve practically relevant and scientific problems with the assistance of these considerations.</p> <p><b>Application and generation of knowledge</b> Students can independently acquire new knowledge and competence; and can conceptually solve an architectural problem impromptu. These problems derive from the three main program areas, which are urban contexts, existing contexts, and new buildings. They can explain and critically interpret their results into research and into special design questions.</p> <p><b>Communication and Cooperation</b> Students are able to discuss alternative, theoretically justifiable results and solutions for architectural projects with a high degree of complexity, from design to detail, with representatives of different academic and non-academic fields of activity, from higher education to crafts.</p> <p><b>Scientific self-concept and professionalism</b> Students can furthermore independently assess architectural situations on the basis of their technical knowledge, draw impromptu adequate conceptual conclusions from them and critically reflect on design implementations in relation to social expectations and consequences and further develop their professional actions.</p>
Module contents	Impromptu Designs: Solving an architectural-relevant task in the form of an Impromptu Design
Module teaching methods	Seminar, design exercises
Module language	English
Module availability	Each summer semester
Module coordination	Prof. Dipl.-Ing. Jean Heemskerk
Comments	None



**Unit description: Module ID: Impromptu Designs**

Unit title	Impromptu Designs
Code	
Module title	Impromptu Designs
Unit contents	The main focus of the unit is the fast, short-term processing of an architectural-spatial topic unknown to the students until the work task is given. Topics can vary from the intervention into an urban context to the conversion of existing buildings and the design of new buildings to the building of objects and furniture. A total of five impromptu designs have to be processed in the unit. The maximum time given for the impromptu design is two weeks. The student is able, in this short time at disposition, to name and elaborate the design criteria adequate to the task given, develop a concept, in scales ranging from 1:2000 to 1:1, and present this appropriately in plans and / or models, to laymen and experts.
Unit teaching methods	Seminar, design exercises
Semester periods (hours) per week	4 SWS
Unit workload (h)	150h
Class hours (h)	60h
Total time of examination incl. preparation (h)	30h
Total time of individual study (h)	60h
Total time of practical training (h)	0h
Unit language	English
Lecturer	Prof. Dr.-Ing. Timo Carl, Prof. Stefanie Eberding, Prof. Dr.-Ing. Jan Dieterle, Prof. Dr. Dipl.-Ing. Caroline Günther, Prof. Dipl.-Ing. Jean Heemskerk, Prof. Dr.-Ing. Maren Harnack, Prof. Dr.-Ing. Janna Hohn, Prof. Dr.-Ing. Wolfgang Jung, Prof. Dipl.-Ing. Claudia Lüling, Prof. Dipl.-Ing. Michael Peters, Prof. Dipl.-Ing. Carsten Rohde, Prof. Dr.-Ing. Hans Jürgen Schmitz, Prof. Kuno Mauritius Schneider, Prof. Dr.-Ing. Holger Techen, Prof. Dipl.-Ing. Tatjana Vautz, Prof. Dipl.-Ing. Annett Zinsmeister, substitute professor – Advanced Architecture
Recommended reading	<ul style="list-style-type: none"> <li>• Mayne, Thom &amp; Yi, Eui-Sung Yi (2017): 100 Buildings, 1900-2000, with a foreword by Thom Mayne, New York;</li> <li>• Ford, Edward R. (2009): The Details of Modern Architecture, Volume 1: 1890-1932, Volume 2: 1928- 1988, New York, Princeton Architectural Press;</li> </ul> <p>In each case in the most current edition. Further literature will be announced in the respective course.</p>
Assessment type and form of the unit	
Assessment grading of the	

unit	
Unit comments	None

**Module UDC: Urban Contexts – Design and Construction**

Module title	Urban Contexts - Design and Construction
Module number	UDC
Module code	
Study programme	Advanced Architecture (M.Sc.)
Module usability	In particular for the design modules within this study programme as New Buildings – Design and Construction, Existing Contexts – Design and Construction, and the Master-Thesis
Module duration	One semester
Recommended semester	1st semester
Module type	Compulsory module
ECTS-Credit Points (CP) / Workload (hours)	10 CP / 300 hours
Recommended previous knowledge	None
Prerequisites for participation in the module and the module examination	None
Prerequisites for the acquisition of credit points:	a. None
a. preliminary examination as module examination prerequisites	
b. Module examination	b. Project work (submission period 12 weeks) with presentation (at least 10, at most 20 minutes)
Learning outcomes and skills	<p><b>Knowledge and Understanding:</b></p> <p>The students have a broad, detailed and critical understanding of the most up-to-date state of knowledge in the thematic field of Designing in Urban Contexts. The focus lies on the conception of a clear urban and architectural concept under consideration of the urban context, including both built and open spaces, the relevant urban and architectural typologies, and their technical and material implementation. Particular attention is given to the question of how to respond in an adequate and sustainable form to the existing spatial, functional and infrastructural contexts of the proposed design and of how to create new and livable contexts. The students have an in-depth</p>

	<p>understanding of how essential this approach is for a sustainable development of our cities and gauge the subject-specific and epistemologically substantiated correctness of scientific and methodological considerations in this field. They are able to solve practically relevant and scientific problems with the assistance of these considerations.</p> <p><b>Use, application, and generation of knowledge:</b></p> <p>Students are able to apply the gained knowledge and understanding as well as their problem-solving skills to develop designs for urban contexts in several formats adequate to the requests of our time, to evaluate them and to make comprehensive decisions on the grounds of the specific contexts and conditions. Students integrate existing and new knowledge in complex contexts of sustainable design and construction an urban context also on the basis of incomplete or limited information. They make scientifically-founded decisions and critically reflect on possible consequences of these decisions and independently acquire new knowledge and competence.</p> <p><b>Communication and Cooperation:</b></p> <p>Furthermore, the students are able to exchange problems and solutions with expert representatives and outsiders on a technically advanced level, as well as to identify specific requirements of each work case and to communicate the motivations for their concepts and designs developed for this purpose in a clear and comprehensible form, and in different ways, appropriate to the stage of project development. For this, they choose and justify concrete ways of operationalizing research in the field of design and construction in urban context.</p> <p><b>Scientific self-image / professionalism:</b></p> <p>The students develop a professional self-image that is guided by the goals and standards of professional action within the fields of designing in urban contexts. They critically reflect on their professional action with regard to social expectations and consequences and refine their professional action by justifying their own actions by means of theoretical and methodological knowledge.</p>
Module contents	Urban Contexts – Design and Construction: Urban Design and Implementation
Module teaching methods	Seminar, design exercises
Module language	English
Module availability	Each summer semester
Module coordination	Prof. Dr.-Ing. Janna Hohn
Comments	None

**Unit description: Module UDC: Urban Contexts – Design and Construction**

Unit title	Urban Contexts – Design and Construction: Urban Design and Implementation
Code	
Module title	Urban Contexts - Design and Construction
Unit contents	The main focus of the Unit „Urban Contexts – Design and Implementation“ lies on the conception of a clear urban and architectural concept under consideration of the urban context, including both built and open spaces, the relevant urban and architectural typologies, and their technical and material implementation. Particular attention is given to the question of how to respond in an adequate and sustainable form to the existing spatial, functional and infrastructural contexts of the proposed design and of how to create new and livable contexts. The students acquire knowledge by deepening their design vision into concepts for urban, architectural and material implementation and by thinking in alternatives. The emphasis is on the interrelationships between the former and the newly created urban context, between the architectural interventions and the urban space, between public and private uses and spaces, between the built forms and the material and atmospheric qualities.
Unit teaching methods	Seminar, design exercises
Semester periods (hours) per week	5 SWS
Unit workload (h)	300h
Class hours (h)	75h
Total time of examination incl. preparation (h)	65h
Total time of individual study (h)	160h
Total time of practical training (h)	0h
Unit language	English
Lecturer	Substitute Professor - Advanced Architecture, Prof. Dr.-Ing. Maren Harnack, Prof. Dr.-Ing. Janna Hohn, Prof. Dr.-Ing. Jan Dieterle
Recommended reading	<ul style="list-style-type: none"> <li>• Schenk, L.: Designing Cities. Basics, Principles, Projects. Basel;</li> <li>• Bürklin, T. &amp; Peterek, M.: Urban Building Blocks. Basel;</li> <li>• Koetter, Fred &amp; Rowe, Colin: Collage City. Cambridge (Mass.);</li> </ul> <p>In each case in the most current edition. Further literature will be announced in the respective course.</p>
Assessment type and form of the unit	
Assessment grading of the unit	
Unit comments	None

**Module IDBP: International Design and Building Project**

Module title	International Design and Building Project
Module number	IDBP
Module code	
Study programme	Advanced Architecture (M.Sc.)
Module usability	In particular for the design modules within this study programme as Impromptu Design, International Design Project, New Buildings – Design and Construction, and Existing Contexts – Design and Construction as well as the Master-Thesis.
Module duration	One semester
Recommended semester	1st semester
Module type	Compulsory module
ECTS-Credit Points (CP) / Workload (hours)	5 CP / 150 hours
Recommended previous knowledge	None
Prerequisites for participation in the module and the module examination	None
Prerequisites for the acquisition of credit points:	a. None
a. preliminary examination as module examination prerequisites	
b. Module examination	b. Project work (submission period 12 weeks) with presentation (at least 10, at most 20 minutes)
Learning outcomes and skills	<p><b>Knowledge and Understanding:</b></p> <p>The students are able to define and interpret the special features, limits, terminologies and schools of thought the field of design and build projects in an international framework with different climatic parameters. They have a broad, detailed and critical understanding of the most up-to-date state of knowledge in the interrelation between architectural design and architectural technique. For this purpose, internationally relevant design themes are worked out for the areas of new buildings or existing structures, right up to the realization of models of details on the scale of 1:1. The students gauge the subject-specific and epistemologically substantiated correctness of</p>

	<p>scientific and methodological considerations concerning topics in the field of design and build projects and are able to solve practically relevant and scientific problems with the assistance of these considerations. The focus is always on the cultural, climatic and technical conditions analyzed on the basis of the fundamental research depending on the respective topic and location and the appropriate and sustainable management of our built environment. The students have an in-depth understanding of how essential it is to understand designing and building as inseparable qualities.</p> <p><b>Use, application, and generation of knowledge:</b> Students integrate existing and new knowledge in the complex context of design- build projects also on the basis of incomplete or limited information and make scientifically-founded decisions and critically reflect on possible consequences of these decisions. They are able to apply the gained knowledge and understanding as well as their problem-solving skills to develop designs for existing contexts in several formats adequate to the requests of our time, to evaluate them and to make comprehensive decisions on the grounds of an understanding of the specific qualities of materials, and developments of techniques.</p> <p><b>Communication and Cooperation:</b> Students are able to develop and elaborate strategies and concepts on a compulsory subject matter of high complexity in an interdisciplinary cooperation of study fields, together in possible co-operations with students and professors from other disciplines and international universities. These co-operation partners bring their diverse expertise on the aforementioned forms of an appropriate and sustainable management of our built environment to the international co-operations.</p> <p><b>Scientific self-image / professionalism:</b> The students develop a professional self-image that is guided by the goals and standards of professional action within the fields of designing and building in their inseparable interrelationship. They justify their own actions by means of theoretical and methodological knowledge from the field of research into design and build projects and reflect on this with regard to alternative constructs and projects.</p>
Module contents	International Design and Building Project
Module teaching methods	Seminar, design exercises
Module language	English
Module availability	Each summer semester
Module coordination	Prof. Dipl.-Ing. Claudia Lüling
Comments	None

**Unit description: Module IDBP: International Design and Building Project**

Unit title	International Design and Building Project
Code	
Module title	International Design and Building Project
Unit contents	The main focus of the architectural design and the realization project in an international context is the interrelation between architectural design and architectural technique. For this purpose, internationally relevant design themes are worked out for the areas of new buildings or existing structure, right up to the realization of models of details on the scale of 1: 1, depending on the chosen climatic zone and the sustainable goals that were defined in the beginning of the project. The focus is always on the cultural, climatic and technical conditions analyzed on the basis of the fundamental research depending on the respective topic and location and the appropriate and sustainable management of our built environment.
Unit teaching methods	Seminar, design exercises
Semester periods (hours) per week	4 SWS
Unit workload (h)	150h
Class hours (h)	60h
Total time of examination incl. preparation (h)	30h
Total time of individual study (h)	60h
Total time of practical training (h)	0h
Unit language	English
Lecturer	Prof. Dipl.-Ing. Claudia Lüling
Recommended reading	<ul style="list-style-type: none"> <li>• Kraus, Chad (Editor) (2017): Designbuild Education, Routledge;</li> <li>• Hegger, Manfred (2008): Energy manual: sustainable architecture, Birkhäuser, Basel;</li> </ul> <p>In each case in the most current edition. Further literature will be announced in the respective course.</p>
Assessment type and form of the unit	
Assessment grading of the unit	
Unit comments	None



**Module LC: Lecture Series Construction**

Module title	Lecture Series Construction
Module number	LC
Module code	
Study programme	Advanced Architecture (M.Sc.)
Module usability	In particular for the design modules within this study programme and their constructive focuses as in International Design Project, New Buildings – Design and Construction, and Existing Contexts – Design and Construction as well as in the Specialization Project
Module duration	One semester
Recommended semester	2nd semester
Module type	Compulsory module
ECTS-Credit Points (CP) / Workload (hours)	5 CP / 150 hours
Recommended previous knowledge	None
Prerequisites for participation in the module and the module examination	None
Prerequisites for the acquisition of credit points:	a. None
a. preliminary examination as module examination prerequisites	
b. Module examination	b. Oral examination (at least 15, at most 20 minutes)
Learning outcomes and skills	<p><b>Knowledge and Understanding:</b></p> <p>The students have a detailed knowledge in the thematic field of Architectural Construction. The focus here is primarily on the manifolded parameters of architectural construction which can respond convincingly to today's requests. These reach from constructing in response to climate, to our material resources, to an efficient use of energy, to constructing in response to qualities of production, ranging from industrial production to craftsmanship, to constructing with a limited budget. This includes the knowledge of concepts like perception and structural rationalism, construction and ornament, and material efficiency, as well as standardization of construction and the chances of a future-oriented de-constructing and recycling. The students have an in-</p>

	<p>depth understanding of how essential these parameters of design and construction are, and to which extent they determine each other reciprocally. They are able to use their knowledge and understanding as a basis for developing and/or applying their own concepts for design and construction, founded on a critical understanding of the most important theories, principles and methods from the field of design and construction. Their broad, detailed and critical understanding at the cutting edge of knowledge as generalists with self-selected areas of specialization includes an in-depth knowledge of innovation, sustainability, optimization of resource use and climate-appropriate construction.</p> <p><b>Use, application, and generation of knowledge:</b></p> <p>Students are able to apply the gained knowledge and understanding as well as their problem-solving skills to develop architectural constructions in several formats adequate to climatic contexts, to our material resources, to an efficient use of energy, as well as to specific forms of production, and the limits set by the budget to evaluate them and to make comprehensive decisions on the grounds of the specific contexts and conditions. They are also able to independently acquire new knowledge and skills in order to conceive and carry out application-oriented planning and construction projects largely on their own responsibility in terms of design, space and technical/constructive aspects.</p> <p><b>Communication and Cooperation:</b></p> <p>Furthermore, the students are able to exchange problems and solutions with expert representatives and outsiders on a technically advanced level, as well as to identify specific requirements of each work case and to communicate the motivations for their concepts and designs developed for this purpose in a clear and comprehensible form.</p> <p><b>Scientific self-image / professionalism:</b></p> <p>The students develop a professional self-image that is guided by the goals and standards of professional action within the fields of construction and design understanding the manifold relationships between the design ideals and the reality/realities of construction into which these ideas have been translated and are still being translated. They recognize appropriate framework conditions of professional, responsible agency and provide ethical justification for their decisions.</p>
Module contents	Lecture series Construction
Module teaching methods	Lecture
Module language	English
Module availability	Each winter semester
Module coordination	Prof. Dipl.-Ing. Tatjana Vautz
Comments	None

**Unit description: Module LC: Lecture Series Construction**

Unit title	Lecture Series Construction
Code	
Module title	Lecture Series Construction
Unit contents	In the Lecture Series Construction, the interrelationship between design and its constructive implementation is primarily viewed, examined and evaluated from the viewpoint of constructive implementation. The same attention is given to the main focus of the course, urban contexts, existing building structures and new buildings. Starting points are the identification of the most important persons involved in the planning process and the study of their different demands, work approaches and decision-making criteria regarding the structural development of the structure, building envelope and interior design. In terms of content, the required profile of use and the urban / architectural response are correspondingly compared with the possible constructive implementations. This includes also the decision-making process of the adequate materials, from the best design form to the evaluation of the efficiency, costs and the shape of a construction, as well as the construction and maintenance costs, life cycles and energy efficiency, regulations and legal questions. These parameters are related to the conceptual design approach and the desired shape quality.
Unit teaching methods	Lecture
Semester periods (hours) per week	4 SWS
Unit workload (h)	150h
Class hours (h)	60h
Total time of examination incl. preparation (h)	30h
Total time of individual study (h)	60h
Total time of practical training (h)	0h
Unit language	English
Lecturer	Prof. Dr.-Ing. Hans Jürgen Schmitz, Prof. Dr.-Ing. Holger Techen, Prof. Dipl.-Ing. Tatjana Vautz, substitute professor - Advanced Architecture
Recommended reading	<ul style="list-style-type: none"> <li>• Deplazes, Andrea (Hrsg.) (2005): Architektur konstruieren, 3. Auflage, Stuttgart;</li> <li>• Cheret, Peter (Hrsg.) (2010): Baukonstruktionslehre, Berlin;</li> </ul> <p>In each case in the most current edition. Further literature will be announced in the respective course.</p>
Assessment type and form of the unit	
Assessment grading of the unit	
Unit comments	None

**Module IDP: International Design Project**

Module title	International Design Project
Module number	IDP
Module code	
Study programme	Advanced Architecture (M.Sc.)
Module usability	In particular for the design modules within this study programme as New Buildings – Design and Construction, and Existing Contexts – Design and Construction, and the Master-Thesis
Module duration	One semester
Recommended semester	2nd semester
Module type	Compulsory module
ECTS-Credit Points (CP) / Workload (hours)	5 CP / 150 hours
Recommended previous knowledge	None
Prerequisites for participation in the module and the module examination	None
Prerequisites for the acquisition of credit points:	a. None
a. preliminary examination as module examination prerequisites	
b. Module examination	b. Project work (submission period 12 weeks) with presentation (at least 10, at most 20 minutes)
Learning outcomes and skills	<p><b>Knowledge and Understanding:</b></p> <p>The students have a detailed knowledge in the thematic field of Developing Design Concepts in International Co-operations. The focus lies on design concepts and strategies, their study, critical evaluation, and transfer to the design of interventions into existing contexts. Particular attention is given to the question of how to respond in an adequate and sustainable form to the requests of existing contexts, and in particular non protected ones, and of how to create new and livable contexts. The emphasis is on five questions.</p>

	<p>These are: How to strengthen the role of adaptive reuse in architectural design? How to implement the strategies of adaptive reuse into practice? How to place material reuse at the center of the design process? How to expand the brief for adaptive reuse to the scale of the site? How to establish a legacy for dis-assembling and re-assembling?</p> <p>The students can independently research the essential aspects from building history to cultural aspects, analyze and methodically evaluate their design concepts while framing their work in relation to building-type relevant, material and technical developments as well as actual concepts such as Reduce, Reuse, Recycling.</p> <p><b>Use, application, and generation of knowledge:</b></p> <p>Students are able to apply the gained knowledge and understanding as well as their problem-solving skills to develop designs for existing contexts in several formats adequate to the requests of our time, to evaluate them and to make comprehensive decisions on the grounds of the specific contexts and conditions.</p> <p><b>Communication and Cooperation:</b></p> <p>Students are able to develop and elaborate strategies and concepts on a compulsory subject matter of high complexity in an interdisciplinary cooperation of study fields, together in possible co-operations with students and professors from other disciplines and international universities. These co-operation partners bring their diverse expertise on the aforementioned five questions and different approaches to the international co-operations.</p> <p><b>Scientific self-image / professionalism:</b></p> <p>The students develop a professional self-image that is guided by the goals and standards of professional action within the fields of developing concepts and strategies for intervening in a sustainable manner into existing contexts.</p>
Module contents	International Design Project
Module teaching methods	Seminar, design exercises
Module language	English
Module availability	Each winter semester
Module coordination	Prof. Dr.-Ing. Wolfgang Jung
Comments	None

**Unit description: Module IDP: International Design Project**

Unit title	International Design Project
Code	
Module title	International Design Project
Unit contents	<p>The focus of the design project in cooperation with international partner universities is determined by the individual, international semester topic. The topics are the following: city, building in existing buildings, new buildings, depending on the general subject chosen in cooperation with the partner universities. The emphasis is on</p> <ul style="list-style-type: none"> <li>- how to strengthen the role of adaptive reuse in architectural design</li> <li>- how to implement the strategies of adaptive reuse into practice</li> <li>- how to place material reuse at the center of the design process</li> <li>- how to expand the brief for adaptive reuse to the scale of the site,</li> <li>- how to establish a legacy for dis-assembling and re-assembling.</li> </ul> <p>In all three thematic areas, the fundamental questions about the socially appropriate and sustainable handling of our built environment are at the forefront.</p>
Unit teaching methods	Seminar, design exercises
Semester periods (hours) per week	4 SWS
Unit workload (h)	150h
Class hours (h)	60h
Total time of examination incl. preparation (h)	30h
Total time of individual study (h)	60h
Total time of practical training (h)	0h
Unit language	English
Lecturer	Prof. Dr.-Ing. Wolfgang Jung
Recommended reading	<ul style="list-style-type: none"> <li>• Petzet, M. &amp; Heilmeyer, F. (2012): Reduce, Reuse, Recycle: architecture as resource, German Pavilion / 13th International Architecture Exhibition La Biennale di Venezia, Hatje Cantz Verlag, Ostfildern;</li> <li>• Boesch, Martin (Hrsg.) (2017): YellowRed: on Re-used Architecture, Cinisello Balsamo (Milano);</li> <li>• Bundesstiftung Baukultur (Hrsg.): Baukultur – Report. Heritage – Presence – Future. 2018/19;</li> </ul> <p>In each case in the most current edition. Further literature will be announced in the respective course.</p>
Assessment type and form of the unit	
Assessment grading of the unit	

Unit comments	None
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**Module NDC: New Buildings – Design and Construction**

Module title	New Buildings - Design and Construction
Module number	NDC
Module code	
Study programme	Advanced Architecture (M.Sc.)
Module usability	In particular for the design modules within this study programme as International Design Project, Existing Contexts – Design and Construction, and the Master-Thesis.
Module duration	One semester
Recommended semester	2nd semester
Module type	Compulsory module
ECTS-Credit Points (CP) / Workload (hours)	10 CP / 300 hours
Recommended previous knowledge	None
Prerequisites for participation in the module and the module examination	None
Prerequisites for the acquisition of credit points:	a. None
a. preliminary examination as module examination prerequisites	
b. Module examination	b. Project work (submission period 12 weeks) with presentation (at least 10, at most 20 minutes)
Learning outcomes and skills	<p><b>Knowledge and Understanding:</b></p> <p>The students have a broad, detailed and critical understanding of the most up-to-date state of knowledge in the thematic field of Designing and Constructing of New Buildings. The focus lies on the development of a clear architectural concept, the quality of its spatial and atmospheric composition and the elaboration of material, technical and constructive means in order to translate the spatial-atmospheric qualities envisioned into a building. The emphasis is on the interrelationship between use and space versus material, form versus bearing construction, atmospheric qualities versus the envelope of a building. The students have an in-depth understanding of how essential this approach is for a sustainable design and construction of our new buildings</p>



	<p>and gauge the subject-specific and epistemologically substantiated correctness of scientific and methodological considerations in this field. They are able to solve practically relevant and scientific problems with the assistance of these considerations.</p> <p><b>Use, application, and generation of knowledge:</b></p> <p>Students are able to apply the gained knowledge and understanding as well as their problem-solving skills to develop designs for new buildings in several formats adequate to the requests of our time, to evaluate them and to make comprehensive decisions on the grounds of the specific contexts and conditions. Students integrate existing and new knowledge in complex contexts of sustainable design and construction of new buildings also on the basis of incomplete or limited information. They make scientifically-founded decisions and critically reflect on possible consequences of these decisions and independently acquire new knowledge and competence.</p> <p><b>Communication and Cooperation:</b></p> <p>Furthermore, the students are able to exchange problems and solutions with expert representatives and outsiders on a technically advanced level, as well as to identify specific requirements of each work case and to communicate the motivations for their concepts and designs developed for this purpose in a clear and comprehensible form, and in different ways, appropriate to the stage of project development. For this, they choose and justify concrete ways of operationalising research in the field of design and construction of new buildings.</p> <p><b>Scientific self-image / professionalism:</b></p> <p>The students develop a professional self-image that is guided by the goals and standards of professional action within the fields of designing and constructing new buildings. They critically reflect on their professional action with regard to social expectations and consequences and refine their professional action by justifying their own actions by means of theoretical and methodological knowledge.</p>
Module contents	New Buildings – Design and Construction: Architectural concepts and their materialization
Module teaching methods	Seminar, design exercises
Module language	English
Module availability	Each winter semester
Module coordination	Prof. Dipl.-Ing. Tatjana Vautz
Comments	None

**Unit description: NDC: New Buildings – Design and Construction**

Unit title	New Buildings – Design and Construction: Architectural concepts and their materialization
Code	
Module title	New Buildings - Design and Construction
Unit contents	The main focus of the Unit “New Buildings – Design and Construction: Architectural concepts and their materialization” lies on the development of a clear architectural concept, the quality of its spatial and atmospheric composition and the elaboration of material, technical and constructive means in order to demonstrate the spatial-atmospheric qualities envisioned. Particular attention is given to the question of how to respond in an adequate and sustainable form to today’s requests and of how to create new and livable contexts. The students acquire knowledge by deepening their design vision into building-constructive design and thinking in alternatives. The emphasis is on the interrelationship between use and space versus material, form versus bearing construction, atmospheric qualities versus the envelope of a building.
Unit teaching methods	Seminar, design exercises
Semester periods (hours) per week	5 SWS
Unit workload (h)	300h
Class hours (h)	75h
Total time of examination incl. preparation (h)	65h
Total time of individual study (h)	160h
Total time of practical training (h)	0h
Unit language	English
Lecturer	Prof. Dr.-Ing. Timo Carl, Prof. Stefanie Eberding, Prof. Dr.-Ing. Jan Dieterle, Prof. Dr. Dipl.-Ing. Caroline Günther, Prof. Dipl.-Ing. Jean Heemskerk, Prof. Dr.-Ing. Maren Harnack, Prof. Dr.-Ing. Janna Hohn, Prof. Dr.-Ing. Wolfgang Jung, Prof. Dipl.-Ing. Claudia Lüling, Prof. Dipl.-Ing. Michael Peters, Prof. Dipl.-Ing. Carsten Rohde, Prof. Dr.-Ing. Hans Jürgen Schmitz, Prof. Kuno Mauritius Schneider, Prof. Dr.-Ing. Holger Techen, Prof. Dipl.-Ing. Tatjana Vautz, Prof. Dipl.-Ing. Annett Zinsmeister, substitute professor – Advanced Architecture
Recommended reading	<ul style="list-style-type: none"> <li>• Merritt, Frederick S. &amp; Ricketts, Jonathan T.: Building Design and Construction Handbook;</li> <li>• Schittich, Christian (ed.)(2016): best of DETAIL Beton/Concrete, Institut für internationale Architektur-Dokumentation GmbH &amp; Co. KG, München;</li> <li>• Schultz, Helmut C. (2000): Steel construction manual., Birkhäuser, Basel;</li> </ul> <p>In each case in the most current edition. Further literature will be announced in the respective course.</p>
Assessment type and form of the unit	

Assessment grading of the unit	
Unit comments	None

**Module SP: Specialization Project**

Module title	Specialization Project
Module number	SP
Module code	
Study programme	Advanced Architecture (M.Sc.)
Module usability	In particular for the Master-Thesis
Module duration	One semester
Recommended semester	3rd semester
Module type	Compulsory module
ECTS-Credit Points (CP) / Workload (hours)	10 CP / 300 hours
Recommended previous knowledge	None
Prerequisites for participation in the module and the module examination	Module LC Lecture Series Construction and / or Module LD Lecture Series Design
Prerequisites for the acquisition of credit points:	a. None
a. preliminary examination as module examination prerequisites	
b. Module examination	b. Project work (submission period 12 weeks) with presentation (at least 10, at most 20 minutes)
Learning outcomes and skills	<p><b>Knowledge and Understanding</b> Students gauge the subject-specific and epistemologically substantiated correctness of scientific and methodological considerations in design and construction in architecture. They are able to solve practically relevant and scientific problems with the assistance of scientific methods. By this the students have significantly deepened and broadened their knowledge in this field and are able to independently formulate, investigate, elaborate, and present a topic of relevance for the fields of working in urban contexts, in existing contexts and on new buildings.</p> <p><b>Application and generation of knowledge</b> The student independently acquire new knowledge and competence in the field of design and construction in architecture. They carry out independent scientific or</p>

	<p>applied research projects in a largely self-directed/autonomous manner. The students explain and critically interpret research results.</p> <p><b>Communication and Cooperation</b> Students recognize potential conflicts in the collaboration with others and reflect on these against the background of general possibilities and conditions, based on scientific research. Their constructive, conceptual action ensures operative implementation of solutions.</p> <p><b>Scientific self-understanding / Professionalism</b> Students develop a professional self-image that is guided by the goals and standards of professional action. They justify their own actions in the field of design and construction by means of theoretical and methodological knowledge and reflect on this with regard to alternative constructs and projects. They also critically reflect on their professional action with regard to social expectations and consequences, and refine their professional action.</p>
Module contents	Introduction to Scientific Research, Specialization Project
Module teaching methods	Seminar
Module language	English
Module availability	Each summer semester
Module coordination	Prof. Dipl.-Ing. Tatjana Vautz
Comments	None

**Unit description: SP: Introduction to Scientific Research**

Unit title	Introduction to Scientific Research
Code	SP
Module title	Specialization Project
Unit contents	Introduction into scientific working: - writing an abstract - defining a field of interest, - posing a research question - finding an adequate methodology - visualisation of results - drawing a conclusion
Unit teaching methods	Seminar
Semester periods (hours) per week	4 SWS
Unit workload (h)	150 h
Class hours (h)	60 h
Total time of examination incl. preparation (h)	30 h
Total time of individual study (h)	60 h
Total time of practical training (h)	0h
Unit language	English
Lecturer	Prof. Dr.-Ing. Timo Carl, Prof. Dr.-Ing. Wolfgang Jung, Prof. Dr.-Ing. Florian Mähl, Prof. Dipl.-Ing. Claudia Lüling, Prof. Dr.-Ing. Hans Jürgen Schmitz, Prof. Dr.-Ing. Holger Techen, Prof. Dipl.-Ing. Tatjana Vautz, substitute professor – Advanced Architecture
Recommended reading	Will be announced by the lecturer at the beginning of the seminar, depending on the individual fields of investigation chosen by the students.
Assessment type and form of the unit	
Assessment grading of the unit	
Unit comments	None

**Unit description: SP: Specialization Project**

Unit title	Specialization Project
Code	SP
Module title	Specialization Project
Unit contents	The main focus of the architecture-relevant topic of the module is defined by the students independently and according to their own priorities and interests. The chosen theme can be developed either with a predominantly theoretical approach, or elaborated in form of a concrete implementation project. The content is based on topics that have been elaborated in the compulsory and optional modules, in which the students participated up to this point in time and which are now deepened. As an alternative, the students can also work on new themes relevant to architecture, which can be related to topics of the FFin.
Unit teaching methods	Seminar
Semester periods (hours) per week	4 SWS
Unit workload (h)	150 h
Class hours (h)	60 h
Total time of examination incl. preparation (h)	30 h
Total time of individual study (h)	60 h
Total time of practical training (h)	0 h
Unit language	English
Lecturer	Prof. Dr.-Ing. Timo Carl, Prof. Dr.-Ing. Wolfgang Jung, Prof. Dr.-Ing. Florian Mähl, Prof. Dipl.-Ing. Claudia Lüling, Prof. Dr.-Ing. Hans Jürgen Schmitz, Prof. Dr.-Ing. Holger Techen, Prof. Dipl.-Ing. Tatjana Vautz, substitute professor – Advanced Architecture
Recommended reading	Will be announced by the lecturer at the beginning of the seminar, depending on the individual subjects chosen by the students.
Assessment type and form of the unit	
Assessment grading of the unit	
Unit comments	None

**Module EDC: Existing Contexts – Design and Construction**

Module title	Existing Contexts - Design and Construction
Module number	EDC
Module code	
Study programme	Advanced Architecture (M.Sc.)
Module usability	In particular for the Master-Thesis
Module duration	One semester
Recommended semester	3rd semester
Module type	Compulsory module
ECTS-Credit Points (CP) / Workload (hours)	10 CP / 300 hours
Recommended previous knowledge	None
Prerequisites for participation in the module and the module examination	None
Prerequisites for the acquisition of credit points: a. preliminary examination as module examination prerequisites	a. None
b. Module examination	b. Project work (submission period 12 weeks) with presentation (at least 10, at most 20 minutes)
Learning outcomes and skills	<p><b>Knowledge and Understanding:</b></p> <p>The students have a broad, detailed and critical understanding of the most up-to-date state of knowledge in the thematic field of Designing and Constructing in Existing Contexts. The focus lies on the development of a clear architectural concept under consideration of the existing building structure, the quality of its spatial and atmospheric composition and the elaboration of material, technical and constructive means. The emphasis is on the interrelationship between the former and the new use and the redesign of the building, thereby the interrelation between space versus material, form versus bearing construction, atmospheric qualities versus the envelope of a building. The students gauge the subject-specific and epistemologically substantiated correctness of scientific and methodological considerations in this field.</p>



	<p>They are able to solve practically relevant and scientific problems with the assistance of these considerations. They can independently research the essential aspects from building history to cultural aspects, analyze and methodically evaluate their design concepts while framing their work in relation to building-type relevant, material and technical developments as well as actual concepts such as Reduce, Reuse, Re-Cycling. The students have an in-depth understanding of how essential this approach is for a sustainable development of our existing building contexts.</p> <p><b>Use, application, and generation of knowledge:</b></p> <p>Students are able to apply the gained knowledge and understanding as well as their problem-solving skills to develop designs for existing contexts in several formats adequate to the requests of our time, to evaluate them and to make comprehensive decisions on the grounds of the specific contexts and conditions. Students integrate existing and new knowledge in complex contexts of design and construction in existing contexts also on the basis of incomplete or limited information. They make scientifically-founded decisions and critically reflect on possible consequences of these decisions and independently acquire new knowledge and competence.</p> <p><b>Communication and Cooperation:</b></p> <p>Furthermore, the students are able to exchange problems and solutions with expert representatives and outsiders on a technically advanced level, as well as to identify specific requirements of each work case and to communicate the motivations for their concepts and designs developed for this purpose in a clear and comprehensible form, and in different ways, appropriate to the stage of project development. For this, they choose and justify concrete ways of operationalising research in the field of sustainable design and construction of existing buildings.</p> <p><b>Scientific self-image / professionalism:</b></p> <p>The students develop a professional self-image that is guided by the goals and standards of professional action within the fields of designing and constructing in existing contexts. They critically reflect on their professional action with regard to social expectations and consequences and refine their professional action by justifying their own actions by means of theoretical and methodological knowledge.</p>
Module contents	Existing Structures - Design and Construction: Re-Design and Conversion
Module teaching methods	Seminar, design exercises
Module language	English
Module availability	Each summer semester
Module coordination	Prof. Dr.-Ing. Wolfgang Jung
Comments	None

**Unit description: EDC: Existing Contexts – Design and Construction**

Unit title	Existing Structures - Design and Construction: Re-Design and Conversion
Code	
Module title	Existing Contexts - Design and Construction
Unit contents	<p>The main focus of the Unit “Existing Structures - Design and Construction: Re-Design and Conversion” lies on the development of a clear architectural concept under consideration of the existing building structure, the quality of its spatial and atmospheric composition and the elaboration of material, technical and constructive means. Topics are</p> <ul style="list-style-type: none"> <li>- how to respond in an adequate and sustainable form to the requests of existing contexts, listed and protected and not</li> <li>- how to create new and livable contexts.</li> </ul> <p>The students acquire knowledge by deepening their design vision into building-constructive design and thinking in alternatives. The emphasis is on the interrelationship between the former and the new use and the redesign of the building, thereby the interrelation between space versus material, form versus bearing construction, atmospheric qualities versus the envelope of a building.</p>
Unit teaching methods	Seminar, design exercises
Semester periods (hours) per week	5 SWS
Unit workload (h)	300 h
Class hours (h)	75 h
Total time of examination incl. preparation (h)	65 h
Total time of individual study (h)	160 h
Total time of practical training (h)	0 h
Unit language	English
Lecturer	Prof. Dr.-Ing. Timo Carl, Prof. Stefanie Eberding, Prof. Dr.-Ing. Jan Dieterle, Prof. Dr. Dipl.-Ing. Caroline Günther, Prof. Dipl.-Ing. Jean Heemskerk, Prof. Dr.-Ing. Maren Harnack, Prof. Dr.-Ing. Janna Hohn, Prof. Dr.-Ing. Wolfgang Jung, Prof. Dipl.-Ing. Claudia Lüling, Prof. Dipl.-Ing. Michael Peters, Prof. Dipl.-Ing. Carsten Rohde, Prof. Dr.-Ing. Hans Jürgen Schmitz, Prof. Kuno Mauritius Schneider, Prof. Dr.-Ing. Holger Techen, Prof. Dipl.-Ing. Tatjana Vautz, Prof. Dipl.-Ing. Annett Zinsmeister, substitute professor – Advanced Architecture
Recommended reading	<ul style="list-style-type: none"> <li>• Petzet, M. &amp; Heilmeyer, F. (2012): Reduce, Reuse, Recycle: architecture as resource, German Pavilion / 13th International Architecture Exhibition La Biennale di Venezia, Hatje Cantz Verlag, Ostfildern;</li> <li>• Wong, L. (2017): Adaptive Reuse. Extending the Life of Buildings;</li> <li>• Kuipers, Marieke &amp; de Jonge, Wessel (2017): Designing from Heritage - Strategies for Conservation and Conversion, TU Delft - Heritage &amp; Architecture;</li> </ul>

	In each case in the most current edition. Further literature will be announced in the respective course.
Assessment type and form of the unit	
Assessment grading of the unit	
Unit comments	None

**Module T: Master-Thesis with Colloquium**

Module title	Master-Thesis with Colloquium
Module number	T
Module code	
Study programme	Advanced Architecture (M.Sc.)
Module usability	The module is essentially based on the Design and Construction Modules, and the specialization module
Module duration	One semester
Recommended semester	4th semester
Module type	Compulsory module
ECTS-Credit Points (CP) / Workload (hours)	30 CP / 900 hours
Recommended previous knowledge	None
Prerequisites for participation in the module and the module examination	At least 80 CP, only one of the two lecture series (module LD – Lecture Series Design or module LC – Lecture Series Construction) and one of the five compulsory elective modules can be completed at the same time as the module Master's thesis with Colloquium or later.
Prerequisites for the acquisition of credit points:	a. None
a. preliminary examination as module examination prerequisites	
b. Module examination	Master-Thesis (submission period 18 weeks) with Colloquium (at least 30, at most 45 minutes)
Learning outcomes and skills	<b>Knowledge and Understanding:</b> Students are able to define and interpret in the field of sustainable architectural design and construction specifics, limits, terminologies and doctrines of integration into the urban context, new building context as well as existing building context. On this basis, students independently develop architectural concepts that are application- or research-oriented. They weigh the professional epistemologically based correctness of scientifically based and methodically clearly comprehensible developed spatial concepts against each other and can solve practice-relevant and scientific problems in the field of design and construction with the help of these considerations.

	<p><b>Application and generation of knowledge</b> Students are able to apply their knowledge, understanding, and problem-solving skills in the field of design and construction to new and unfamiliar situations that have a broader or multidisciplinary context in the field of sustainable construction. To this end, they integrate existing and new knowledge in complex contexts - also on the basis of limited information - and independently acquire new knowledge and skills, carrying out application-oriented projects on their own. In this context, they explain research findings and interpret them critically, culminating in the development of their own research questions in the area of design and construction.</p> <p><b>Communication and Cooperation:</b> Students integrate participants from different academic and non-academic, craft fields of activity into tasks in a goal-oriented manner, taking into account the respective group situation. They recognize conflict potentials in cooperation and reflect on them against the background of cross-situational, spatial, design and technical-constructive conditions of sustainable construction. Through constructive, conceptual action, they ensure the implementation of spatial solutions that are appropriate to the situation and convincing in terms of architecture and design.</p> <p><b>Scientific self-understanding/professionalism:</b> Students reflect critically and ethically on their professional actions in the field of design and construction in relation to social expectations and consequences and develop their professional actions further. In doing so, they justify this with theoretical and methodological knowledge from the field of sustainable building on the topics of urban context, new building context as well as existing building context and reflect on it with regard to their own professional self-image, which is oriented towards the goals and standards of professional action both in science and the professional fields outside science.</p>
Module contents	Master-Thesis with Colloquium
Module teaching methods	Thesis
Module language	English
Module availability	Each semester
Module coordination	Head of study programme
Comments	None

**Unit description: T: Master-Thesis with Colloquium**

Unit title	Master-Thesis with Colloquium
Code	
Module title	Master-Thesis with Colloquium
Unit contents	<p>Individual and independent elaboration of an architectural project in the context of "design and construction", based on scientific research as well as a comprehensible, convincing, contemporary conceptualization in terms of design and space. This is done on a scale appropriate to the topic and presented using analog and digital representation techniques.</p> <p>Individual deepening of a selection of single or combined subareas:</p> <ul style="list-style-type: none"> <li>- Integration into a landscape and/or urban context.</li> <li>- Building typologies from new and/or existing buildings</li> <li>- Requirements for supporting structure, construction and materials for a sustainable building performance</li> </ul> <p>The individual work steps are structured as follows:</p> <ul style="list-style-type: none"> <li>- Scientific research based on the state of the art in science and research - related to the respective topic of the thesis - in the field of sustainable, architectural design and construction with possible in-depth research in the field of urban planning, structural engineering and construction.</li> <li>- Spatial conceptualization in relation to the respective topic on the basis of an iterative, comparative and analyzing-assessing approach in alternatives and variants, in two- and three-dimensional representations, analog and digital, clearly structured and orally presented.</li> <li>- Elaboration of the thesis in plans, models and an explanatory brochure on the topics of scientific research and concept development. Research and concept development</li> </ul>
Unit teaching methods	Seminar, self-study
Semester periods (hours) per week	0,55 SWS
Unit workload (h)	900 h
Class hours (h)	8 h
Total time of examination incl. preparation (h)	92 h
Total time of individual study (h)	800 h
Total time of practical training (h)	0 h
Unit language	English
Lecturer	Prof. Dr.-Ing. Timo Carl, Prof. Stefanie Eberding, Prof. Dr.-Ing. Jan Dieterle, Prof. Dr. Dipl.-Ing. Caroline Günther, Prof. Dipl.-Ing. Jean Heemskerk, Prof. Dr.-Ing. Maren Harnack, Prof. Dr.-Ing. Janna Hohn, Prof. Dr.-Ing. Wolfgang Jung, Prof. Dipl.-Ing. Claudia Lüling, Prof. Dipl.-Ing. Michael Peters, Prof. Dipl.-Ing. Carsten Rohde, Prof. Dr.-Ing. Hans Jürgen Schmitz, Prof. Kuno Mauritius Schneider, Prof. Dr.-Ing. Holger Techen, Prof. Dipl.-Ing. Tatjana Vautz, Prof. Dipl.-Ing. Annett Zinsmeister, substitute professor – Advanced Architecture

Recommended reading	Part of the thesis is the competence to find and use relevant literature on one's own.
Assessment type and form of the unit	
Assessment grading of the unit	
Unit comments	None

**Module WM 1E: Climate Design**

Module title	Climate Design
Module number	WM 1E
Module code	
Study programme	Advanced Architecture (M.Sc.)
Module usability	In particular for the modules within this study programme as Impromptu Design, Urban Contexts – Design and Construction, International Design and Building Project, Urban Contexts – Design and Construction, International Design Project, New Buildings – Design and Construction, Existing Contexts – Design and Construction, and the Master-Thesis.
Module duration	One semester
Recommended semester	2nd semester
Module type	Compulsory elective module
ECTS-Credit Points (CP) / Workload (hours)	5 CP / 150 hours
Recommended previous knowledge	None
Prerequisites for participation in the module and the module examination	None
Prerequisites for the acquisition of credit points:	a. None
a. preliminary examination as module examination prerequisites	
b. Module examination	b. Written homework assignment (submission period 6 weeks) with presentation (at least 10, at most 20 minutes)
Learning outcomes and skills	<p><b>Knowledge and Understanding:</b> The students have a detailed knowledge in the thematic field of Climate Design. The focus here is primarily on buildings and their interaction with the local climate. The students have an in-depth understanding of how essential the basics of bioclimatic performance in terms of comfort and energy are.</p> <p><b>Use, application, and generation of knowledge:</b> Students are able to apply the gained knowledge and understanding as well as their problem-solving skills to develop architectural designs in several formats adequate to</p>



	<p>climatic contexts, to evaluate them and to make comprehensive decisions on the grounds of the specific contexts and conditions.</p> <p><b>Communication and Cooperation:</b> Furthermore, the students are able to exchange problems and solutions with expert representatives and outsiders on a technically advanced level, as well as to identify specific requirements of each work case and to communicate the motivations for their concepts and designs developed for this purpose in a clear and comprehensible form.</p> <p><b>Scientific self-image / professionalism:</b> The students develop a professional self-image that is guided by the goals and standards of professional action within the fields of sustainability, thermal performance, integration of renewable energy and the requirements of the users.</p>
Module contents	Climate Design
Module teaching methods	Seminar
Module language	English
Module availability	Each winter semester
Module coordination	Prof. Dr.-Ing. Hans Jürgen Schmitz
Comments	None

**Unit description: WM 1E: Climate Design**

Unit title	Climate Design
Code	
Module title	Climate Design
Unit contents	<p>The holistic view and combination of building design, building structure, building facade and building technology with the goal of an optimal energy consumption for new buildings, and in existing contexts in a sustainable way, for example from the following contents:</p> <ul style="list-style-type: none"> <li>- Integration of building design, structure, envelope and technology; Innovative ventilation systems, daylight concepts, renewable energy; Energetic optimization of existing buildings;</li> <li>- Refurbishment</li> <li>- Sustainable facade constructions</li> <li>- Material and material development in the construction sector</li> <li>- Energetic optimization and balancing</li> <li>- Gray energy - from production to demolition</li> </ul>
Unit teaching methods	Seminar
Semester periods (hours) per week	4 SWS
Unit workload (h)	150h
Class hours (h)	60h
Total time of examination incl. preparation (h)	30h
Total time of individual study (h)	60h
Total time of practical training (h)	0h
Unit language	English
Lecturer	Prof. Dr.-Ing. Hans Jürgen Schmitz, substitute professor – Advanced Architecture
Recommended reading	<p>Depending on the specific focus of the module, literature will be addressed at the beginning, e.g.:</p> <ul style="list-style-type: none"> <li>• Behling, Stephan (2000): Solar Power: The Evolution of Sustainable Architecture, München, 2000;</li> <li>• Hausladen, Gerhard (205): Climate Design: solutions for buildings that can do more with less technology, Birkhäuser, Basel;</li> </ul> <p>In each case in the most current edition. Further literature will be announced in the respective course.</p>
Assessment type and form of the unit	
Assessment grading of the unit	

Unit comments	None
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**Module WM 2E: Rehabilitate, Reuse, Add-on**

Module title	Rehabilitate, Reuse, Add-on
Module number	WM 2E
Module code	
Study programme	Advanced Architecture (M.Sc.)
Module usability	In particular for the modules within this study programme as Impromptu Design, Urban Contexts – Design and Construction, International Design and Building Project, Urban Contexts – Design and Construction, International Design Project, New Buildings – Design and Construction, Existing Contexts – Design and Construction, and the Master-Thesis.
Module duration	One semester
Recommended semester	2nd semester
Module type	Compulsory elective module
ECTS-Credit Points (CP) / Workload (hours)	5 CP / 150 hours
Recommended previous knowledge	None
Prerequisites for participation in the module and the module examination	None
Prerequisites for the acquisition of credit points:	a. None
a. preliminary examination as module examination prerequisites	
b. Module examination	b. Written homework assignment (submission period 6 weeks) with presentation (at least 10, at most 20 minutes)
Learning outcomes and skills	<p><b>Knowledge and Understanding:</b></p> <p>The students have a detailed knowledge in the thematic field of Climate Design. The focus here is primarily on buildings and their interaction with the local climate. The students have an in-depth understanding of how essential the basics of bioclimatic performance in terms of comfort and energy are.</p> <p>The students have a detailed knowledge in the thematic field of Rehabilitate, Reuse, Add-on. The focus is primarily on buildings and building sites constructed in the 20th century that are now listed, but also on others that are not yet protected but are of</p>

	<p>similar quality and importance. The students have an in-depth understanding of how essential the built environment is for a sustainable approach to our environment.</p> <p><b>Use, application, and generation of knowledge:</b></p> <p>Students are able to apply the gained knowledge and understanding as well as their problem-solving skills to develop architectural designs in several formats adequate to climatic contexts, to evaluate them and to make comprehensive decisions on the grounds of the specific contexts and conditions.</p> <p>Students are able to apply the gained knowledge and understanding as well as their problem-solving skills to develop design projects in the field of the rehabilitation, and reuse of architecture and city, to evaluate them and to make comprehensive decisions on the grounds of the specific contexts and conditions.</p> <p><b>Communication and Cooperation:</b></p> <p>Furthermore, the students are able to exchange problems and solutions with expert representatives and outsiders on a technically advanced level, as well as to identify specific requirements of each work case and to communicate the motivations for their concepts and designs developed for this purpose in a clear and comprehensible form.</p> <p><b>Scientific self-image / professionalism:</b></p> <p>The students develop a professional self-image that is guided by the goals and standards of professional action within the fields of sustainability, thermal performance, integration of renewable energy and the requirements of the users.</p> <p>The students develop a professional self-image that is guided by the goals and standards of professional action within the fields of an ecological and economic dealing with existing buildings and sites in architecture and at the same time on the important topic of a sustainable handling of our resources.</p>
Module contents	Rehabilitate, Reuse, Add-on
Module teaching methods	Seminar
Module language	English
Module availability	Each winter semester
Module coordination	Prof. Dr.-Ing. Wolfgang Jung
Comments	None

**Unit description: WM 2E: Rehabilitate, Reuse, Add-on**

Unit title	Rehabilitate, Reuse, Add-on
Code	
Module title	Rehabilitate, Reuse, Add-on
Unit contents	The students are introduced to the history of conservation, to strategies of reuse and to concepts of add-on to existing buildings and monuments. At the center of this is the study of how to deal with the protected monument from the 20th century, but also with buildings not yet listed, but of quality and relevance as well. On this basis students have to develop and formulate a concept for a rehabilitation, reuse and add-on for a selected building example of this time period.
Unit teaching methods	Seminar
Semester periods (hours) per week	4 SWS
Unit workload (h)	150h
Class hours (h)	60h
Total time of examination incl. preparation (h)	30h
Total time of individual study (h)	60h
Total time of practical training (h)	0h
Unit language	English
Lecturer	Prof. Dr.-Ing. Wolfgang Jung, substitute professor – Advanced Architecture
Recommended reading	<ul style="list-style-type: none"> <li>• Wüstenrot Stiftung (Hrsg.); Markgraf, Monika et al. (2011): Denkmalpflege der Moderne. Konzepte für ein junges Architekturerbe, Stuttgart + Zürich;</li> <li>• Kuipers, Marieke &amp; de Jonge, Wessel (2017): Designing from Heritage – Strategies for Conservation and Conversion, TU Delft - Heritage &amp; Architecture;</li> <li>• Bundesstiftung Baukultur (Hrsg.): Baukultur – Report. Heritage – Presence – Future. 2018/19;</li> </ul> <p>In each case in the most current edition. Further literature will be announced in the respective course.</p>
Assessment type and form of the unit	
Assessment grading of the unit	
Unit comments	None

**Module WM 3E: Urban Design and Public Space**

Module title	Urban Design and Public Space
Module number	WM 3E
Module code	
Study programme	Advanced Architecture (M.Sc.)
Module usability	In particular for the modules within this study programme as Impromptu Design, Urban Contexts – Design and Construction, International Design and Building Project, Urban Contexts – Design and Construction, International Design Project, New Buildings – Design and Construction, Existing Contexts – Design and Construction, and the Master-Thesis.
Module duration	One semester
Recommended semester	1st semester
Module type	Compulsory elective module
ECTS-Credit Points (CP) / Workload (hours)	5 CP / 150 hours
Recommended previous knowledge	None
Prerequisites for participation in the module and the module examination	None
Prerequisites for the acquisition of credit points:	a. None
a. preliminary examination as module examination prerequisites	
b. Module examination	b. Written homework assignment (submission period 6 weeks) with presentation (at least 10, at most 20 minutes)
Learning outcomes and skills	<p><b>Knowledge and Understanding:</b></p> <p>The students have a detailed knowledge in the thematic field of Climate Design. The focus here is primarily on buildings and their interaction with the local climate. The students have an in-depth understanding of how essential the basics of bioclimatic performance in terms of comfort and energy are.</p> <p>The students have a detailed knowledge in the thematic field of Urban Design and Public Space. The focus lies primarily on current challenges and issues regarding the spatial, functional, social and ecological structures of our cities. The students have an in-depth understanding of the current tasks in terms of urban design and public space</p>

	<p>planning that are crucial for a sustainable future of our cities.</p> <p><b>Use, application, and generation of knowledge:</b>  Students are able to apply the gained knowledge and understanding as well as their problem-solving skills to develop architectural designs in several formats adequate to climatic contexts, to evaluate them and to make comprehensive decisions on the grounds of the specific contexts and conditions.</p> <p>Students are able to apply the gained knowledge and understanding as well as their problem-solving skills to develop visions, strategies and design proposals on different scales, to evaluate them and to make comprehensive decisions on the grounds of the specific contexts and conditions.</p> <p><b>Communication and Cooperation:</b>  The students have the key qualifications to independently develop arguments and problem-solving approaches individually or in team work. To do this, they know how to collect, evaluate and interpret relevant information; the results of this methodically analytical work can be formulated as subject-related positions.</p> <p><b>Scientific self-image / professionalism:</b>  The students develop a professional self-image that is guided by the goals and standards of professional action within the fields of sustainability, thermal performance, integration of renewable energy and the requirements of the users.</p> <p>The students develop a professional self-image that is guided by the goals and standards of professional action within the fields of urban design and public space. The students gain the ability to present their work verbally and in written form including the critical questioning of one's own point of view.</p>
Module contents	Urban Design and Public Space
Module teaching methods	Seminar
Module language	English
Module availability	Each summer semester
Module coordination	Prof. Dr.-Ing. Janna Hohn
Comments	None



**Unit description: WM 3E: Urban Design and Public Space**

Unit title	Urban Design and Public Space
Code	
Module title	Urban Design and Public Space
Unit contents	Changing current in-depth topics from the fields of urban design and open space planning.
Unit teaching methods	Seminar
Semester periods (hours) per week	4 SWS
Unit workload (h)	150h
Class hours (h)	60h
Total time of examination incl. preparation (h)	30h
Total time of individual study (h)	60h
Total time of practical training (h)	0h
Unit language	English
Lecturer	Prof. Dr.-Ing. Janna Hohn, Prof. Dr.-Ing. Jan Dieterle, substitute professor – Advanced Architecture
Recommended reading	<ul style="list-style-type: none"> <li>• Carmona, Matthew; Tiesdell, Steve; Heath, Tim; Oc, Taner (2011): Public Places. Urban Spaces. The Dimensions of Urban Design, Oxford;</li> <li>• Schenk, Leonhard (2018): Designing Cities. Basics. Principles. Projects, Basel;</li> </ul> <p>In each case in the most current edition. Further literature will be announced in the respective course.</p>
Assessment type and form of the unit	
Assessment grading of the unit	
Unit comments	None

**Module WM 4E: Digital Basics**

Module title	Digital Basics
Module number	WM 4E
Module code	
Study programme	Advanced Architecture (M.Sc.)
Module usability	In particular for the modules within this study programme as Impromptu Design, Urban Contexts – Design and Construction, International Design and Building Project, Urban Contexts – Design and Construction, International Design Project, New Buildings – Design and Construction, Existing Contexts – Design and Construction, and the Master-Thesis.
Module duration	One semester
Recommended semester	1st semester
Module type	Compulsory elective module
ECTS-Credit Points (CP) / Workload (hours)	5 CP / 150 hours
Recommended previous knowledge	None
Prerequisites for participation in the module and the module examination	None
Prerequisites for the acquisition of credit points:	a. None
a. preliminary examination as module examination prerequisites	
b. Module examination	b. Written homework assignment (submission period 6 weeks) with presentation (at least 10, at most 20 minutes)
Learning outcomes and skills	<p><b>Knowledge and Understanding:</b> The students have a detailed knowledge in the thematic field of Climate Design. The focus here is primarily on buildings and their interaction with the local climate. The students have an in-depth understanding of how essential the basics of bioclimatic performance in terms of comfort and energy are. The students have a detailed knowledge in the thematic field of Computational Design. The focus is primarily on computer-aided geometry generation, graphical programming and digital fabrication. The students have an in-depth understanding of how to select and apply adequate, three-dimensional, digital representation techniques or tools for a corresponding architectural task.</p> <p><b>Use, application, and generation of knowledge:</b> Students are able to apply the gained knowledge and understanding as well as their problem-solving skills to develop architectural designs in several formats adequate to</p>

	<p>climatic contexts, to evaluate them and to make comprehensive decisions on the grounds of the specific contexts and conditions.</p> <p>The students have a holistic overview of the possible uses of computational design tools for various design phases - with a focus on parametric modelling and fabrication methods.</p> <p>They have a basic multi-modal competence in 3D and parametric modeling. Moreover, specific technical knowledge is acquired. Student competences are of an instrumental, systemic and communicative nature.</p> <p>They are able to independently apply basic computational tools in an architectural context for design and construction problems.</p> <p><b>Communication and Cooperation:</b></p> <p>Furthermore, the students are able to exchange problems and solutions with expert representatives and outsiders on a technically advanced level, as well as to identify specific requirements of each work case and to communicate the motivations for their concepts and designs developed for this purpose in a clear and comprehensible form.</p> <p>Furthermore, the students are able to exchange problems and solutions with expert representatives and outsiders on a technically basic level and learn to identify specific requirements and problems for individual computational design problems. Moreover, they learn to present and communicate their concepts and results in a clear and comprehensive form.</p> <p><b>Scientific self-image / professionalism:</b></p> <p>The students develop a professional self-image that is guided by the goals and standards of professional action within the fields of sustainability, thermal performance, integration of renewable energy and the requirements of the users.</p> <p>The students develop a professional self-image that is guided by the goals and standards of professional action within the fields of computational design tools and have a gained fundamental knowledge of relevant literature in the field.</p>
Module contents	Digital Basics
Module teaching methods	Seminar
Module language	English
Module availability	Each summer semester
Module coordination	Prof. Dr.-Ing. Timo Carl
Comments	None

**Unit description: WM 4E: Digital Basics**

Unit title	Digital Basics
Code	
Module title	Digital Basics
Unit contents	<p>The students possess a basic integrated knowledge and understanding of the theoretical background and methods of computational design techniques. The focus is on the selection of adequate, three-dimensional, digital representation techniques or tools for an architectural task.</p> <p>Alternate content includes:</p> <p>Development, control, and automation of form-finding processes;  Development, control and automation of additive and subtractive CNC processes;  Generative geometry generation (parametric modelling) by means of graphical and textual programming;  Basic knowledge of relevant simulation strategies (acoustics, sun, statics).</p>
Unit teaching methods	Seminar
Semester periods (hours) per week	4 SWS
Unit workload (h)	150h
Class hours (h)	60h
Total time of examination incl. preparation (h)	30h
Total time of individual study (h)	60h
Total time of practical training (h)	0h
Unit language	English
Lecturer	Prof. Dr.-Ing. Timo Carl, substitute professor – Advanced Architecture
Recommended reading	<ul style="list-style-type: none"> <li>• Tedeschi, A. (2014): AAD - algorithms-aided design: parametric strategies using Grasshopper, Le Penseur;</li> <li>• Glaeser, G (2014): Geometrie und ihre Anwendungen in Kunst, Natur und Technik, Springer, Berlin Heidelberg;</li> </ul> <p>In each case in the most current edition. Further literature will be announced in the respective course.</p>
Assessment type and form of the unit	
Assessment grading of the unit	
Unit comments	None

**Module WM 5E: Construction**

Module title	Construction
Module number	WM 5E
Module code	
Study programme	Advanced Architecture (M.Sc.)
Module usability	In particular for the modules within this study programme as Impromptu Design, Urban Contexts – Design and Construction, International Design and Building Project, Urban Contexts – Design and Construction, International Design Project, New Buildings – Design and Construction, Existing Contexts – Design and Construction, and the Master-Thesis.
Module duration	One semester
Recommended semester	2nd semester
Module type	Compulsory elective module
ECTS-Credit Points (CP) / Workload (hours)	5 CP / 150 hours
Recommended previous knowledge	None
Prerequisites for participation in the module and the module examination	None
Prerequisites for the acquisition of credit points:	a. None
a. preliminary examination as module examination prerequisites	
b. Module examination	b. Written homework assignment (submission period 6 weeks) with presentation (at least 10, at most 20 minutes)
Learning outcomes and skills	<p><b>Knowledge and Understanding:</b></p> <p>The students have a detailed knowledge in the thematic field of Climate Design. The focus here is primarily on buildings and their interaction with the local climate. The students have an in-depth understanding of how essential the basics of bioclimatic performance in terms of comfort and energy are.</p> <p>The students have a detailed knowledge in the thematic field of Construction. The focus here is primarily on the three overlapping fields of concept, construction and material. The students have an in-depth understanding of how essential it is, to work clearly and coherently in design and construction.</p>

	<p><b>Use, application, and generation of knowledge:</b></p> <p>Students are able to apply the gained knowledge and understanding as well as their problem-solving skills to develop architectural designs in several formats adequate to climatic contexts, to evaluate them and to make comprehensive decisions on the grounds of the specific contexts and conditions.</p> <p>Students are able to apply the gained knowledge and understanding as well as their problem-solving skills to develop design projects in several formats adequate to climatic contexts, to evaluate them and to make comprehensive decisions on the grounds of the specific contexts and conditions.</p> <p><b>Communication and Cooperation:</b></p> <p>Furthermore, the students are able to exchange problems and solutions with expert representatives and outsiders on a technically advanced level, as well as to identify specific requirements of each work case and to communicate the motivations for their concepts and designs developed for this purpose in a clear and comprehensible form.</p> <p>Furthermore, the students are able to exchange problems and solutions with expert representatives and outsiders on a technically advanced level, as well as to identify specific requirements of each work case and to communicate the motivations for their concepts and designs developed for this purpose in a clear and comprehensible form.</p> <p><b>Scientific self-image / professionalism:</b></p> <p>The students develop a professional self-image that is guided by the goals and standards of professional action within the fields of conducting construction in detail, as well as in a wide context. The students gain the ability to present their work verbally and in drawn form including the critical questioning of one's own point of view.</p>
Module contents	Construction
Module teaching methods	Seminar
Module language	English
Module availability	Each winter semester
Module coordination	Prof. Dipl.-Ing. Tatjana Vautz
Comments	None

**Unit description: WM 5E: Construction**

Unit title	Construction
Code	
Module title	Construction
Unit contents	The principal topics are from the fields of: - Association and transformation of space, form and structure; - Designing and constructing at materials best; - New developments in constructive joints
Unit teaching methods	Seminar
Semester periods (hours) per week	4 SWS
Unit workload (h)	150h
Class hours (h)	60h
Total time of examination incl. preparation (h)	30h
Total time of individual study (h)	60h
Total time of practical training (h)	0h
Unit language	English
Lecturer	Prof. Dipl.-Ing. Tatjana Vautz, substitute professor – Advanced Architecture
Recommended reading	<ul style="list-style-type: none"> <li>• Frampton, K. &amp; Cava, J. (ed.) (1995): Studies in tectonic culture: the poetics of constriction in nineteenth and twentieth century architecture, Cambridge, Mass., MIT Press;</li> <li>• Engel, H. (2013): Tragsysteme / Structure system, Ostfildern, Hatje Cantz;</li> <li>• Hofmeister, S. (ed.) (2018): Letztlich suche ich Klarheit: dreizehn Gespräche mit Architekten / Ultimately I search for clarity: thirteen conversations with architects. München: Detail Business Information GmbH;</li> </ul> <p>In each case in the most current edition. Further literature will be announced in the respective course.</p>
Assessment type and form of the unit	
Assessment grading of the unit	
Unit comments	None

**Module WM 6E: Material**

Module title	Material
Module number	WM 6E
Module code	
Study programme	Advanced Architecture (M.Sc.)
Module usability	In particular for the modules within this study programme as Impromptu Design, Urban Contexts – Design and Construction, International Design and Building Project, Urban Contexts – Design and Construction, International Design Project, New Buildings – Design and Construction, Existing Contexts – Design and Construction, and the Master-Thesis.
Module duration	One semester
Recommended semester	3rd semester
Module type	Compulsory elective module
ECTS-Credit Points (CP) / Workload (hours)	5 CP / 150 hours
Recommended previous knowledge	None
Prerequisites for participation in the module and the module examination	None
Prerequisites for the acquisition of credit points:	a. None
a. preliminary examination as module examination prerequisites	
b. Module examination	b. Written homework assignment (submission period 6 weeks) with presentation (at least 10, at most 20 minutes)
Learning outcomes and skills	<b>Knowledge and Understanding:</b> The students have a detailed knowledge in the thematic field of Climate Design. The focus here is primarily on buildings and their interaction with the local climate. The students have an in-depth understanding of how essential the basics of bioclimatic performance in terms of comfort and energy are. The students have a detailed knowledge in the thematic field of building materials. The focus is primarily on materials that either save or produce energy. The students have an in-depth understanding of how essential materials are in terms of the interaction of good design and sustainability.



	<p><b>Use, application, and generation of knowledge:</b> Students are able to apply the gained knowledge and understanding as well as their problem-solving skills to develop architectural designs in several formats adequate to climatic contexts, to evaluate them and to make comprehensive decisions on the grounds of the specific contexts and conditions. Students are able to apply the gained knowledge and understanding as well as their problem-solving skills to develop architectural designs in several formats with new and unknown materials, to evaluate them and to make comprehensive decisions on the grounds of the specific contexts and conditions.</p> <p><b>Communication and Cooperation:</b> Furthermore, the students are able to research and exchange problems and solutions with expert representatives and outsiders on a technically advanced level, as well as to identify specific requirements of each work case and to communicate the motivations for their concepts and designs developed for this purpose in a clear and comprehensible form.</p> <p><b>Scientific self-image / professionalism:</b> The students develop a professional self-image that is guided by the goals and standards of professional action within the fields of sustainability, thermal performance, integration of renewable energy and the requirements of the users. The students develop a professional self-image that is guided by the goals and standards of professional action within the fields of the adequate use of materials, depending on the task given.</p>
Module contents	Material
Module teaching methods	Seminar
Module language	English
Module availability	Each summer semester
Module coordination	Prof. Dipl.-Ing. Claudia Lüling
Comments	None

**Unit description: WM 6E: Material**

Unit title	Material
Code	
Module title	Material
Unit contents	<p>Design in the context of new materials and material developments within the construction sector.</p> <p>The students acquire knowledge in experimental architecture and design, with a focus on the development of concepts for the design with new, unknown materials and materials from research and industry for new buildings and building in existing contexts in a sustainable way.</p>
Unit teaching methods	Seminar
Semester periods (hours) per week	4 SWS
Unit workload (h)	150h
Class hours (h)	60h
Total time of examination incl. preparation (h)	30h
Total time of individual study (h)	60h
Total time of practical training (h)	0h
Unit language	English
Lecturer	Prof. Dipl.-Ing. Claudia Lüling, Prof. Dipl.-Ing. Tatjana Vautz, Prof. Dipl.-Ing. Heinrich Lessing, substitute professor – Advanced Architecture
Recommended reading	<ul style="list-style-type: none"> <li>• Sauer, Christiane (2010): Made of: New Materials, Sourcebook for Architecture and Design, Berlin;</li> <li>• Hillebrandt, Annette (2019): Manual of recycling: buildings as sources of materials, München;</li> </ul> <p>In each case in the most current edition. Further literature will be announced in the respective course.</p>
Assessment type and form of the unit	
Assessment grading of the unit	
Unit comments	None

**Module WM 7E: Experimental Design**

Module title	Experimental Design
Module number	WM 7E
Module code	
Study programme	Advanced Architecture (M.Sc.)
Module usability	In particular for the modules within this study programme as Impromptu Design, Urban Contexts – Design and Construction, International Design and Building Project, Urban Contexts – Design and Construction, International Design Project, New Buildings – Design and Construction, Existing Contexts – Design and Construction, and the Master-Thesis.
Module duration	One semester
Recommended semester	3rd semester
Module type	Compulsory elective module
ECTS-Credit Points (CP) / Workload (hours)	5 CP / 150 hours
Recommended previous knowledge	None
Prerequisites for participation in the module and the module examination	None
Prerequisites for the acquisition of credit points:	a. None
a. preliminary examination as module examination prerequisites	
b. Module examination	b. Written homework assignment (submission period 6 weeks) with presentation (at least 10, at most 20 minutes)
Learning outcomes and skills	<b>Knowledge and Understanding:</b> The students have a detailed knowledge in the thematic field of Climate Design. The focus here is primarily on buildings and their interaction with the local climate. The students have an in-depth understanding of how essential the basics of bioclimatic performance in terms of comfort and energy are. The students have a detailed knowledge in the field of experimental design. The focus here is on deepening experimental basics of design in direct and constructive connection to art and other artistic disciplines. The students have an in-depth understanding of design contexts,

	<p>artistic practices and experimental presentation strategies for the interdisciplinary enrichment and expansion of their architectural knowledge.</p> <p><b>Use, application and generation of knowledge:</b> Students are able to apply the gained knowledge and understanding as well as their problem-solving skills to develop architectural designs in several formats adequate to climatic contexts, to evaluate them and to make comprehensive decisions on the grounds of the specific contexts and conditions. Through the practical application of the acquired knowledge, the students are able to apply the gained knowledge and understanding as well as their problem-solving skills to develop, evaluate and question spatial ideas and concepts in experimental formats and to make further decisions on the basis of the specific contexts and conditions.</p> <p><b>Communication and collaboration:</b> Furthermore, the students are able to exchange problems and solutions with expert representatives and outsiders on a technically advanced level, as well as to identify specific requirements of each work case and to communicate the motivations for their concepts and designs developed for this purpose in a clear and comprehensible form. The students are able to recognize subject-specific requirements, to explore them experimentally and to communicate concepts and drafts that they have developed themselves at a technically advanced level with subject representatives and outsiders in a comprehensible manner.</p> <p><b>Scientific self-image / professionalism:</b> The students develop a professional self-image that is guided by the goals and standards of professional action within the fields of sustainability, thermal performance, integration of renewable energy and the requirements of the users. The students develop a professional self-image that is guided by the goals and standards of professional action within the fields of experimental design strategies and scientific research practice in an experimental context and deepen their knowledge of scientific work in practical application.</p>
Module contents	Experimental Design
Module teaching methods	Seminar
Module language	English
Module availability	Each summer semester
Module coordination	Prof. Dipl.-Ing. Carsten Rohde
Comments	None

**Unit description: WM 7E: Experimental Design**

Unit title	Experimental Design
Code	
Module title	Experimental Design
Unit contents	Design in the context of experimental approaches in space and architecture: The students acquire knowledge how they can solve spatial-architectural questions by the use of alternative approaches instead of classical approaches on the basis of experimental strategies via methodical as well as substantive input to related topics in nature, art and technology.
Unit teaching methods	Seminar
Semester periods (hours) per week	4 SWS
Unit workload (h)	150h
Class hours (h)	60h
Total time of examination incl. preparation (h)	30h
Total time of individual study (h)	60h
Total time of practical training (h)	0h
Unit language	English
Lecturer	Prof. Dipl.-Ing. Carsten Rohde, Prof. Dipl.-Ing. Annett Zinsmeister, Prof. Dipl.-Ing. Claudia Lüling, substitute professor – Advanced Architecture
Recommended reading	Depending on the specific focus of the module, literature will be addressed at the beginning of the lecture.
Assessment type and form of the unit	
Assessment grading of the unit	
Unit comments	None