



Module Handbook

According to the Examination and Study Rules for the Distance Learning Master's Programme Architecture and Environment
as of 17 June 2016

Preface

The instruction of the part-time, distance learning Master's Programme Architecture and Environment is characterised by the use of design-related topics and issues. The curriculum's teaching content complements the knowledge, skills and abilities already acquired during bachelor or diploma studies and enables the students to build upon and expand this knowledge, as well as to add to it through specialised knowledge in the area of sustainable, energy and resource-efficient architecture in order to establish key foci in research and development competence in the area of environmentally appropriate building.

Study in the distance learning programme Architecture and Environment is oriented on the professions of planning, design and architecture, and promotes academic discussion on the artistic-creative, spatial-plastic, technical-constructive and economical-social design of buildings in their environment, with the objective of using the knowledge acquired during undergraduate studies to learn to develop individual approaches to and concepts for architectural objects.

The design competence of environmentally appropriate and sustainable buildings will be further developed in order to acquire the knowledge and qualifications necessary for a profession as architect according to the international Professional Qualifications Directive.

Objectives

The objective of the distance learning programme Architecture and Environment is to recognise the complexity of architecture in its environment and to acquire problem-solving competences necessary for the planning of structures and their integration into an urban setting. As a rule, the modules will be supported by design projects which serve to effectively anchor the modern demands of networked planning processes and team-oriented, interdisciplinary work methods within the course of study. The students learn to reconcile the different requirements of the various modules with complex tasks and to develop an integrated approach to solutions. Course work enables them to apply, transfer, and to independently further develop scientific methods.

Current practice-relevant projects in the part-time distance learning programme Architecture and Environment are handled scientifically, taking into consideration all socially relevant factors.

Summary

Module	Content	Responsible for Module
PM 01	General Sciences - Architecture Ecology - Recycling Economy - Urban Ecology - History and Theory of Architecture	Prof. Dr. Dr. Annette Otte
PM 02	Presentation and Design - Aesthetics in Sustainable Architecture - Visualisation of Architecture	N. N.
PM 03	Planning and Design - Planning and Design within Existing Structures - Planning and Design of New Buildings - Integrated Design	Prof. Martin Wollensak
PM 04	Energy-efficient Architecture - Building Climatics - Regenerative Energy Systems - Energy and Building Technology	Prof. Dr. Gerhard Hausladen
PM 05	Resource-efficient, Low-pollutant Architecture - Building Materials and Health - Resources and Recycling - Material Flows in Planning and Building Processes	Prof. Dr. Wolfgang Linden
PM 06	Architecture and Environment - Water and Landscape - Light and Structure - Integral Planning	Prof. Dr. Thomas Römheld, Prof. Martin Oldenburg
PM 07 (A)	Specialisation Urban Planning - Urban Development and Design - Urban Planning and Infrastructure - Urban Ecosystems - Certification Urban District - Urban Design	Prof. Dr. Ekhart Hahn
PM 07 (B)	Specialisation Refurbishment - Building Biology - Pollutants from a Chemical Viewpoint - Pollutants from a Human Toxicology Viewpoint - Building Certification - Refurbishment Design	Prof. Martin Wollensak
PM 08	Master's Seminar	Prof. Martin Wollensak
PM 09	Master's Thesis	
WPM 01-05	Specialisation Project Work, Elective Modules	
WPM 01	Design Methodolgy and Architecture Theory	
WPM 02	Architecture Representation and Presentation	
WPM 03	Energy Calculation and Verification	
WPM 04	Building Management and Life Cycle	
WPM 05	Methodology of Scientific Work	

PM 01	General Sciences
Responsible for module	Prof. Dr. Dr. Annette Otte
Qualification according to Directive 2005/36/EC	b. Appropriate knowledge of the history and teaching of architecture and the related arts, technologies and humanities.
Topics	Architecture ecology, recycling economy, urban ecology, history and theory of architecture
Contents	<ul style="list-style-type: none"> • Topics taken from culture, politics/society, economy and the sciences. Issues concerning sustainability and resource efficiency will be part of the academic discourse. Society, social responsibility and architecture, as well as culture, communication and the media are topics of significant relevance for prospective architects. Academic views on economic and regional development cycles constitute relevant topics for individual positioning. • History of architecture, cultural-scientific theory formation, historical contexts – renovation, modernisation, conservation and restoration • Ecosystems – the basic elements and influence on bioactivity • Function, management and development of the biosphere • Material flow and production – problems and approaches to recycling • Development of materials and products within technical and natural cycles • Biosphere and urban space – from opposition to joined forces: Analysing and planning the elements and cohabitation
Objectives	<p>The objective is to recognise the complexity of architecture in its environment and to develop the problem-solving competences necessary for the planning of structures and their integration into an urban setting.</p> <p>Students will possess the following competences upon successful completion of this module:</p> <ul style="list-style-type: none"> • Ability to describe the problems of the civilisational environment and identify solutions within the scope of urban landscape and the planning and building processes • An understanding of the management of natural systems, taking into account the dangers posed by natural disasters. • The ability to act based on the knowledge of natural systems and building culture. • The ability to act based on the knowledge of historical and cultural precedents from the local and international history of architecture. • An understanding of the importance and problems of cultural heritage and historic preservation in building culture.
Teaching and learning forms	Independent study, telecommunication (study platforms, e-mail, chats, telephone, online conferences, etc.), seminars
Prerequisites	None
Duration	1 semester with 26 weeks
Semester offered	Winter semester
Workload	192.5 hours of independent study and practice, 22.5 hours of seminars, 25 hours of telecommunication (forum, e-mail, chats, telephone, etc.)
Credits	8 credits
Form and extent of study-related examinations	Exam, 120 minutes
Maximum participants	40

PM 02	Presentation and Design
Responsible for module	N. N.
Qualification according to Directive 2005/36/EC	c. Instruction in the creative arts based on their influence on the quality of architectural design.
Topics	Aesthetics in sustainable architecture, visualisation of architecture
Contents	Building upon previously acquired creative abilities in drawing, modelling and painting, further competences in the area of presentation and design will be developed and trained within the scope of a workshop. Starting point is the relationship between man and environment, and its interaction with urban space. To complement this, aspects of art theory and art history in connection

	with figure, space and time will be taught.
Objectives	By realising individual projects in real places, the acquired abilities can lead to the promotion of the own creativity. The focus here is on the experimental character of these activities. Students will possess the following competences upon successful completion of this module: <ul style="list-style-type: none"> • The ability to act based on the knowledge of the fine arts and with the awareness that they influence the quality of architectural design. • Awareness of the connection between architecture, environment, and other creative disciplines. • A fundamental positioning toward the design and presentation of sustainable buildings and to the critical analysis of ecological design formats.
Teaching and learning forms	Independent study, telecommunication (study platforms, e-mail, chats, telephone, online conferences, etc.), seminars/workshops, sketching and modelling
Prerequisites	None
Duration	1 semester with 26 weeks
Semester offered	Winter semester
Workload	95 hours of independent study and practice, 15 hours of seminars, 10 hours of telecommunication (forum, e-mail, chats, telephone, etc.)
Credits	4 credits
Form and extent of study-related examinations	Homework/exercise (sketching, modelling, collages,..)
Maximum participants	40

PM 03	Planning and Design
Responsible for module	Prof. Martin Wollensak
Qualification according to Directive 2005/36/EC	a. The ability to architectually design objects which meet aesthetic as well as technical needs and requirements. g. An understanding of the methods of design development and analysis of their application for a design project.
Topics	Planning and design within existing buildings, planning and design of new buildings, integrated design
Contents	<p>Analysis of structural, technical and practical issues and the challenges of energy-saving, resource-efficient architecture. Building upon an understanding of the subject content gained during undergraduate studies, existing design knowledge will be further developed through specialist knowledge in the areas of environment and technical sciences, construction economics and construction management, and planning methodology. Focus of the design work is the integration of technical, ecological and economical constraints in architectural and design concepts, which will be comprehensively developed and appropriately portrayed and presented within the framework of a design project. Knowledge of professional, commercial, financial, and legal standards and requirements will also be applied.</p> <ul style="list-style-type: none"> • Design and construction of sustainable buildings: Design principles/framework conditions for integrated building design • Analysis of examples (model projects) • Methods, instruments and processes of integrated building design: goal definition/project development/programme • Development of reconstruction and expansion plans which adhere to aspects of environment sustainability • Development of integrated building concepts, taking into consideration <ul style="list-style-type: none"> - Function and use (operation/utilisation) - Use and development (flexibility/variability)) - Development and orientation (climate/position) - Construction and technology (building climate) - Material and construction (weight, mass) - Construction and form finding (additive/integrated systems)

	<ul style="list-style-type: none"> • Features of redevelopment which take into account aspects of environment compatibility • Integrated design
Objectives	<p>Analysis and development of concepts for complex building structures which adhere to aspects of sustainability for new buildings and building redevelopment.</p> <p>Students will possess the following competences upon successful completion of this module:</p> <ul style="list-style-type: none"> • The ability to use the imagination, to think creatively, to develop innovation as well as to take on leadership. • The ability to research information, to define problems, to carry out analyses as well as to critically evaluate and formulate action strategies. • The ability to think three-dimensionally in design planning. • The ability to assess various factors, to bring in knowledge, and use the acquired skills in solving design problems.
Teaching and learning forms	Independent study, telecommunication (study platforms, e-mail, chats, telephone, online conferences, etc.), seminars
Prerequisites	None
Duration	2 semesters with 52 weeks
Semester offered	Winter semester / summer semester
Workload	420 hours of independent study and practice, 50 hours of seminars, 10 hours of telecommunication (forum, e-mail, chats, telephone, etc.)
Credits	16 credits
Form and extent of study-related examinations	Homework/exercises; design project/project work in content-related cooperation with modules 1, 2, 4, 5
Maximum participants	40

PM 04	Energy-efficient Architecture
Responsible for module	Prof. Dr. Gerhard Hausladen
Qualification according to Directive 2005/36/EC	i. Appropriate knowledge of the physical problems and technologies related to the function of a building – creating comfort and protection against weather conditions.
Topics	Building climatics, regenerative energy systems, energy and building technology
Contents	<p>Increasing energy efficiency is an important cornerstone of the Energiewende (energy revolution). It sinks energy costs, improves the security of supply and creates significant investments for the domestic economy. In addition, it contributes significantly to climate protection. Thus, a more efficient handling of energy makes an important contribution to all the objectives of the Energy Policy Triangle. There is substantial potential for the conservation of energy in all of the consumption sectors throughout Europe.</p> <ul style="list-style-type: none"> • The building during the day and during the course of the year taking account the location • Sun, light, heat and air – the indoor climate • The climate building shell – function, dimensioning and formation • Construction and installation – building technology in interaction with building construction and use • Energy saving regulations, Renewable Energy Heat Act (EEWärmeG) • Building restoration and conversion
Objectives	<p>Students will possess the following competences upon successful completion of this module:</p> <ul style="list-style-type: none"> • The ability to demonstrate technical principles of energy efficient construction, taking into account aspects of environment compatibility, and to apply these in the planning process. • The ability to use building technology with innovative, technical competence, and with an understanding of its development. • An understanding of the processes of technical design and the integration of structure, construction technologies and service systems as an effective, functioning entity. • An understanding for the role of technical documentation and specifications in design implementation and the construction, cost, planning and control

	processes.
Teaching and learning forms	Independent study, telecommunication (study platforms, e-mail, chats, telephone, online conferences, etc.), seminars
Prerequisites	None
Duration	1 semester with 26 weeks
Semester offered	Winter semester
Workload	145 hours of independent study and practice / 20 hours of seminars, 15 hours of telecommunication (forum, e-mail, chats, telephone, etc.)
Credits	6 credits
Form and extent of study-related examinations	Exam, 120 minutes or homework / exercises
Maximum participants	40

PM 05	Resource-efficient, Low-pollutant Architecture
Responsible for module	Prof. Dr. Wolfgang Linden
Qualification according to Directive 2005/36/EC	h. An understanding of the structural problems related to building design.
Topics	Building materials and health, resources and recycling, material flows in planning and building processes
Contents	<p>Reducing large material flows has been a key policy issue since the reports to the Club of Rome and is implemented by the EU Construction Products Regulation with the basic requirement "sustainable use of natural resources". The second cornerstone of low-pollutant architecture is implemented with the basic requirement "hygiene, health and environment". Possible implementation strategies will be introduced in the module and assessed based on the effectiveness of the appropriate instruments. Examples taken from architecture illustrate the practical relevance and the need to take both environmental cornerstones into account within the framework of sustainable building.</p> <ul style="list-style-type: none"> • Pollution issues and health protection • Material flows, conservation of resources, building material recycling, building chemicals and structural damage analysis • Environment friendly requirements • Instruments for the selection of building products • Product use in the planning and building process
Objectives	<p>Students will possess the following competences upon successful completion of this module:</p> <ul style="list-style-type: none"> • The ability to assess building materials, taking into account environmentally friendly issues, and apply them in the planning and building process. • An awareness of the relevant codes, regulations and norms for the planning, design, construction, health, security and use of building projects. • An understanding of assessment systems for the assessment of building projects by means of manual and/or electronic devices (e.g. ÖKOBAUDAT)
Teaching and learning forms	Independent study, telecommunication (study platforms, e-mail, chats, telephone, online conferences, etc.), seminars
Prerequisites	None
Duration	1 semester with 26 weeks
Semester offered	Summer semester
Workload	150 hours of independent study and practice, 15 hours of seminars, 15 hours of telecommunication (forum, e-mail, chats, telephone, etc.)
Credits	6 credits
Form and extent of study-related examinations	Exam, 120 minutes
Maximum participants	40

PM 06	Architecture and Environment
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Responsible for module	Prof. Dr. Thomas Römhild, Prof. Martin Oldenburg
Qualification according to Directive 2005/36/EC	e. An understanding of the relationship between people and buildings, as well as between buildings and their environment, and an understanding of the necessity to correlate buildings and their distance to one another with human needs and standards.
Topics	Water and landscape, light and structure, integral planning
Contents	<p>It is impossible to develop sustainable buildings independent of the environment for which they are planned. Planning requires expert knowledge of the interconnectedness of, among other things, water and landscape, and light and structure. Since the utilisation phase of buildings is larger by a factor of 10 – 20 than the planning and construction phase, the quality of contemporary planning is the decisive lever for the quality of our constructed environment for the next 30 to 50 years, and far beyond. An optimisation of planning processes, including all those involved and their qualifications, also serves the optimisation of energy consumption and the resulting environmental pollution, as well as the improvement of the comfort, acceptance and efficiency of a building.</p> <ul style="list-style-type: none"> • Water and nutrient cycles • Material flow analysis of ecosystems influenced by humans and sustainable design of material flow • Sustainable material flow management, assessment, and quality management • Composition and properties (quantities, substances) of the various partial currents (rainwater, and gray, brown, black and yellow water) • Management of rainwater and gray, brown, black and yellow water indoors and outdoors • Methods and technologies of treating diverse types of water, taking environmental friendliness into account, recycling systems • Installation and technologies of sanitary facilities • Installation and techniques outdoors • Preparation and treatment processes and their effects on the individual partial currents (techniques, design parameters, etc.) • Interaction between light and space • Optimisation of the building's orientation • Light technology • Perception • Integral planning
Objectives	<p>Students will possess the following competences upon successful completion of this module:</p> <ul style="list-style-type: none"> • An understanding of the social contexts which lead to the development of building projects in relation to the ergonomic and spatial requirements and issues of equality and accessibility • An understanding of the life cycle of materials, problems of ecological sustainability, the effects on the environment, energy-efficient design, as well as passive systems and their management. • The ability to explain and stabilise sustainable water and nutrient cycles, as well as to methodically, conceptually, and effectively develop construction measures for indoors and outdoors. • The ability to recognise the differences between preparation and treatment processes and to categorise them in regard to application and use.
Teaching and learning forms	Independent study, telecommunication (study platforms, e-mail, chats, telephone, online conferences, etc.), seminars
Prerequisites	None
Duration	2 semesters with 52 weeks
Semester offered	Summer semester/winter semester
Workload	260 hours of independent study and practice, 25 hours of seminars, 15 hours of telecommunication (forum, e-mail, chats, telephone, etc.)
Credits	10 credits
Form and extent of study-related examinations	Exam, 90 minutes or alternative examination as well as an exam, 90 minutes or homework / exercise

Maximum participants	40
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PM 07A	Urban Planning
Responsible for module	Prof. Dr. Ekhart Hahn
Qualification according to Directive 2005/36/EC	d. Appropriate knowledge of urban development planning and design, of planning in general and of planning techniques.
Topics	Urban development and design, urban planning and infrastructure, urban ecosystems, certification urban district, urban design
Contents	<p>Structural and spatial consideration of selected topics and projects in the conflicting areas of urbanity and rurality. The requirements of sustainable urban development and landscape planning, and the relationships between city, surrounding countryside and region have changed in light of increasing urbanisation worldwide and the rise in land use, climate change and the shortage of resources, as well as an increase in pollution. Serious changes in technology and society have played an important role. The significance of public as well as private outdoor space within the urban structure has also changed under the conditions of postindustrial society. The goal must be to meet diverse needs without neglecting social, economic, environmental, design-spatial, traffic or infrastructure aspects.</p> <ul style="list-style-type: none"> • Using selected development projects, these changing phenomena will be more closely examined and the actors involved will be identified, as well the design principles. Key objectives and solutions will be developed. • Environmentally friendly, integrated urban development will be introduced in important sub-issues, such as: integrated urban energy, water, mobility and material flow concepts, new concepts for a blue – green infrastructure, changing functional requirements of private and public outdoor space, the importance of aesthetic and creative requirements. • Under the keyword eco-city, problems will be identified, objectives and solutions will be worked out, and practical implementation strategies will be developed. • In regard to urban space and urban structure, the issue is especially the key role of urban districts in realising the objectives of an integral ecological urban development, such as: the compact city, competent density and placemaking, closing material cycles and the use of local resources, participation and participatory concepts. • The methodology and classification of integrated, ecological overall concepts will be learned, from the formation of vision and urban analysis and development of structural plans to concrete urban design, which takes into special consideration aesthetic and creative factors. • Current certification criteria and methods for urban districts will be introduced, especially those of the German Sustainable Building Council (DGNB). <p>The focus of this module's teaching is the application of learned content toward a specific urban design developed as a semester project. The design task consists of the exemplary, contentually and conceptually sound development of an ecological urban district, which takes into special consideration aesthetic and creative factors.</p> <p>The project area will be determined according to the respective selection criteria.</p>
Objectives	<p>Students will possess the following competences upon successful completion of this module:</p> <ul style="list-style-type: none"> • The ability to conceptually, methodically, and effectively carry out ecological urban planning and to assess it. • The ability to act based on the knowledge of social contexts and to work with clients and operators who represent the requirements and demands of society. • The ability to develop project documents based on the definition of the needs of society, clients and operators, and to research and define correlated and functional requirements for diverse types of built environments. • An understanding of the history and practice of urban design, landscape planning, as well as area and regional planning, and their connection to local and global demography and the utilisation of given natural resources. • Knowledge of design theory and methodology.

	<ul style="list-style-type: none"> • An understanding of design procedures and processes. • Knowledge of precedents in design as well as architectural criticism. • The ability to recognise problems in integrated building which takes into consideration aspects of environmental sustainability and to develop solutions based on sub or overall concepts.
Teaching and learning forms	Independent study, telecommunication (study platforms, e-mail, chats, telephone, online conferences, etc.), seminars
Prerequisites	None
Duration	1 semester with 26 weeks
Semester offered	Winter semester
Workload	355 hours of independent study and practice / 45 hours of seminars and 20 hours of telecommunication (forum, e-mail, chats, telephone, etc.)
Credits	14 credits
Form and extent of study-related examinations	- Exam, 90 minutes and design project / project work in content-related cooperation with module 6.3 - or homework/exercise
Maximum participants	40

PM 07B	Refurbishment
Responsible for module	Prof. Martin Wollensak
Qualification according to Directive 2005/36/EC	j. The necessary abilities to provide designs which meet the needs of users while adhering to cost factors and building regulations.
Topics	Building biology, pollutants from a chemical viewpoint, pollutants from a human toxicology viewpoint, building certification, redevelopment design
Contents	<p>Building stock shapes and characterises the appearance of urban space. The potential of existing buildings must be recognised and further optimised within the framework of sustainable redevelopment.</p> <p>It is especially important for the handling and preservation of these buildings to recognise the constructive, physical, biological and chemical problems, and devise concepts for environmentally appropriate redevelopment. Their manifest resources are often of ecological value and must, in light of ever-changing requirements, be analysed and adapted to "new" needs. Responsible redevelopment can extend the life of existing buildings through continued use, modernisation or conversion, thus contributing significantly to the conservation of resources and environmental relief.</p> <ul style="list-style-type: none"> • Impacts of the built environment on human health • Comfortable living space with the stipulation of health security for the inhabitants • Pollutants in building products: impact, classification and prevention • Selection of building materials based on optimisation of products, launch of sustainable products and cost control • Selection aids: quality labels and standards • Concepts for the selection of ecological building products • Design project / project work
Objectives	<p>Students will possess the following competences upon successful completion of this module:</p> <ul style="list-style-type: none"> • Knowledge and assessment of the fundamental issues regarding the relationship between human health and the built environment. • Knowledge of the major pollutants in building products based on the knowledge of Module 5 "Resource-efficient, Low-pollutant Architecture", and the ability to describe their impact as well as to classify them according to a system of description. • The ability to develop sustainable design concepts for the renovation and modernisation of existing buildings. • An understanding of the problems related to preservation of existing structures and waste management. • An understanding of the life cycle of materials, of the problems of ecological sustainability, of the effects on the environment, of energy-saving design, as well as of passive systems and their management.

	<ul style="list-style-type: none"> • Technical knowledge of structures, materials and construction. • Knowledge of design theory and methodology. • An understanding of design procedures and processes. • Knowledge of precedents in design as well as architectural criticism.
Teaching and learning forms	Independent study, telecommunication (study platforms, e-mail, chats, telephone, online conferences, etc.), seminars
Prerequisites	None
Duration	1 semester with 26 weeks
Semester offered	Winter semester
Workload	345 hours of independent study and practice / 45 hours of seminars, 30 hours of telecommunication (forum, e-mail, chats, telephone, etc.)
Credits	14 credits
Form and extent of study-related examinations	- Design project / project work in content-related cooperation with module 6.3 and exam, 90 minutes - or homework/exercise
Maximum participants	40

PM o8	Master's Seminar
Responsible for module	Prof. Martin Wollensak
Qualification according to Directive 2005/36/EC	e. Specialisation
Topics	Theoretical background of the master thesis topic
Contents	<p>Scientific work methods will be taught, practised and further developed under the didactic and academic guidance of the lecturer. Master seminar content will be proposed by the students.</p> <ul style="list-style-type: none"> • Theoretical background of the master thesis topic • Development of scientific, academic work methods and techniques, as well as exercises in their implementation. • Relevant to the thematic issues <ul style="list-style-type: none"> - Literature research - Internet research - Possible surveys by questionnaire and /or interviews • The formulation of theses • For the master's thesis <ul style="list-style-type: none"> - Develop recommendations for the academic objective - Formulate possible main topics - Determine appropriate methods and techniques
Objectives	<p>The objective of the seminar is to introduce the students to the theoretical background of the master thesis topic.</p> <p>Students will possess the following competences upon successful completion of this module:</p> <ul style="list-style-type: none"> • The fundamental abilities necessary to engage in scientific, academic work. • Independent development of additional expert knowledge on the basis of existing theoretical basic knowledge.
Teaching and learning forms	Independent study, telecommunication (study platforms, e-mail, chats, telephone, online conferences, etc.), seminars
Prerequisites	None
Duration	1 semester with 26 weeks
Semester offered	Winter semester
Workload	45 hours of independent study and practice / 10 hours of seminars and 5 hours of telecommunication (forum, e-mail, chats, telephone, etc.)
Credits	2 credits
Form and extent of study-related examinations	Paper / presentation or homework / exercise The module is pass/fail and does not count toward the final grade point average.
Maximum participants	40

PM 09	Master's Thesis
Qualification according to Directive 2005/36/EC	f. An understanding by the architect for his profession and his tasks within society, especially in the development of designs which meet the requirements of social factors.
Topics	Architectural design and/or urban design, new buildings or conversion, or renovation
Contents	In-depth discussion and analysis of a research area using academic methods. The topic of the master's thesis will be determined by the students after consultation with and agreement by the advisors. The work should address a topic from the area of Architecture and Environment or represent the complete development of a design which analyses regional and urban guidelines, develops space, and reconciles and balances functional integration.
Objectives	Proof of the knowledge, abilities and qualifications necessary for a profession as architect and the application of scientific, academic methods.
Teaching and learning forms	Independent study, telecommunication (study platforms, e-mail, chats, telephone, online conferences, etc.), seminars
Prerequisites	None
Duration	1 semester with 26 weeks
Semester offered	Summer semester
Workload	680 hours of independent study and practice / 30 hours of seminars and 10 hours of telecommunication (forum, e-mail, chats, telephone, etc.)
Credits	24 credits
Form and extent of study-related examinations	Masters thesis and colloquium
Maximum participants	40

WPM 01	Design Methodology and Architecture Theory
Responsible for module	Stefan Dannel
Qualification according to Directive 2005/36/EC	e. Specialisation
Topics	Architecture-theoretical discussion and analysis based on selected design methods of buildings and districts in modern, contemporary architecture using selected sustainable trends and movements as example.
Contents	The course conveys information on the material cycles in urban districts and buildings which can be used as stimulation in the development of planning methods for the own design process. Design processes and outcomes will be presented in a comprehensive fashion, and the results will be analysed and assessed with the objective of making them applicable for the own design work. The didactic objective is the presentation of design strategies and their possible solutions. Architecture-theoretical issues, the various dimensions of material cycles and variable concepts of space in architecture play a special role.
Objectives	Learning objectives: <ul style="list-style-type: none"> • Knowledge of selected sustainable trends and movements in modern architecture. • Knowledge of current architectural concepts and methods. • The ability to understand and classify important and formative contemporary concepts of architecture. • Further competences in the area of architecture theory.
Teaching and learning forms	Independent study, telecommunication (study platforms, e-mail, chats, telephone, online conferences, etc.), seminars
Prerequisites	None
Duration	1 semester with 26 weeks
Semester offered	Winter semester or summer semester
Workload	160 hours of independent study and practice / 10 hours of seminars and 10 hours of telecommunication (forum, e-mail, chats, telephone, etc.)
Credits	6 credits
Form and extent of study-	Design project/project work, paper/presentation or homework/exercise or

related examinations	alternative examination
Maximum participants	5 – 20

WPM 02	Architecture Representation and Presentation
Responsible for module	Steffen Altmann, MA
Qualification according to Directive 2005/36/EC	e. Specialisation
Topics	Representation and presentation with digital techniques
Contents	<p>Convey the individual aspects of simulation and presentation techniques in architecture. Learn how to work with and select programmes using CAAD, CAM, graphic and image processing, to combine these appropriately and practically in application and to apply them in practical exercises.</p> <ul style="list-style-type: none"> - The basics of CAAD, data formats, exchange of data - Basic principles of plan layouts - Representation techniques - Modelling techniques (sketch up) and compositing (photoshop) - Output of 2D plots pre-press stage (preflight) <p>Course organisation:</p> <ol style="list-style-type: none"> 1. Introduction to the use of learning modules to acquire the basics of computer-based typographical representation, image processing, plan layout and visualisation, as well as the methods and techniques of design and work status presentation and visualization of own design ideas. 2. Introduction to the use of learning modules to practice using pixel-based image processing and vector-based layout programmes including the interfaces to CAD and other programmes. 3. Practice the application of techniques (project work, exercises,...)
Objectives	<p>Students will possess the following competences upon successful completion of this module:</p> <ul style="list-style-type: none"> • Knowledge of the basic and technological features of digital forms of representation. • Knowledge required for the two and three dimensional representation of own design ideas. • The technical and manual abilities to represent own ideas two and three dimensionally. • The ability to recognise which types of presentation are best suited to each respective design concept. • Knowledge to develop a layout based on existing plans. • The ability to visually process and represent the details or features of projects.
Teaching and learning forms	Independent study, telecommunication (study platforms, e-mail, chats, telephone, online conferences, etc.), seminars
Prerequisites	None
Duration	1 semester with 26 weeks
Semester offered	Winter semester or summer semester
Workload	160 hours of independent study and practice / 10 hours of seminars and 10 hours of telecommunication (forum, e-mail, chats, telephone, etc.)
Credits	6 credits
Form and extent of study-related examinations	Design project/project work, paper/presentation or homework/exercise or alternative examination
Maximum participants	5 – 20

WPM 03	Energy Calculation and Verification
Responsible for module	Lucia Oberfrancova, Sven Wünschmann
Qualification according to Directive 2005/36/EC	e. Specialisation
Topics	Constructive technical planning of buildings
Contents	Impart in-depth knowledge of energy calculation and evaluation of the life cycle and the life cycle costs of structures. Building on existing knowledge,

	current stationary and non-stationary methods of verification and monitoring are explained and practised. Presentation, comparison and balancing of various technical constructive concepts for combining material, technology and form using exercises based on the integration of photovoltaic elements in roofs or facades.
Objectives	Students will possess the following competences upon successful completion of this module: <ul style="list-style-type: none"> • Knowledge of verification and balancing methods in the implementation of own architectural intentions in an "complete system structure" integrating subsystems such as building materials, building construction, supporting structure, shell, fit out and building technology • The ability to integrate aspects of design, functionality and sustainability from the concept stage up to the detailed planning process • The ability to combine innovative strategies and sustainable technologies and building materials and use them as a basis for own construction and design activities • The ability to carry out a target-oriented analysis of the relevant parameters, to understand interdependencies and combine subsystems to a multidisciplinary system, without disregarding the specific details
Teaching and learning forms	Independent study, telecommunication (study platforms, e-mail, chats, telephone, online conferences, etc.), seminars
Prerequisites	None
Duration	1 semester with 26 weeks
Semester offered	Winter semester or summer semester
Workload	160 hours of independent study and practice / 10 hours of seminars and 10 hours of telecommunication (forum, e-mail, chats, telephone, etc.)
Credits	6 credits
Form and extent of study-related examinations	Design project/project work, paper/presentation or homework/exercise or alternative examination
Maximum participants	5 – 20

WPM 04	Building Management and Life Cycle
Responsible for module	Dr. Hendrik Müller
Qualification according to Directive 2005/36/EC	e. Specialisation
Topics	In-depth discussion of building economy and management topics
Contents	Specialised knowledge on the early integration of building operations into the building concept. Various technical constructive concepts are described with regard to maintenance, servicing and cleaning aspects.
Objectives	Students will possess the following competences upon successful completion of this module: <ul style="list-style-type: none"> • Knowledge for the implementation of own architectural intent in a "complete system structure" integrating facility management aspects • The ability to analyse and assess the consequences of design, functionality and sustainability for the operation of a building from the concept stage up to the detailed planning • An understanding of the importance of forward-looking and sustainable planning of a building with an integrated approach • The ability to carry out a target-oriented analysis of the relevant parameters, to understand interdependencies and combine subsystems to a multidisciplinary system, without disregarding the specific details
Teaching and learning forms	Independent study, telecommunication (study platforms, e-mail, chats, telephone, online conferences, etc.), seminars
Prerequisites	None
Duration	1 semester with 26 weeks
Semester offered	Winter semester or summer semester
Workload	160 hours of independent study and practice / 10 hours of seminars and 10 hours of telecommunication (forum, e-mail, chats, telephone, etc.)
Credits	6 credits

Form and extent of study-related examinations	Design project/project work, paper/presentation or homework/exercise or alternative examination
Maximum participants	5 – 20

WPM 05	Methodology of Scientific Work
Responsible for module	N.N.
Qualification according to Directive 2005/36/EC	e. Specialisation
Topics	In-depth presentation of the various methods for preparing academic papers and work organisation
Contents	Structure of academic papers Presentation of the current state of science and technology. Analytical, conceptual and strategic instruments. Scientific methods; case studies and field studies. Literature and sources of knowledge Citing and identifying citations – footnotes and author-year citation; page layout; title page and cover page Final editing of academic papers Academic lectures
Objectives	Students will possess the following competences upon successful completion of this module: <ul style="list-style-type: none"> • The ability to handle a field of research using scientific methods • The ability to develop scientific concepts and research
Teaching and learning forms	Independent study, telecommunication (forum, e-mail, chat, telephone, etc.), seminars
Prerequisites	None
Duration	1 semester with 26 weeks
Semester offered	Winter semester or summer semester
Workload	160 hours of independent study and practice / 10 hours of seminars and 10 hours of telecommunication (forum, e-mail, chats, telephone, etc.)
Credits	6 credits
Form and extent of study-related examinations	Design project/project work, paper/presentation or homework/exercise or alternative examination
Maximum participants	5 – 20