

## UNIVERSITY CALENDAR

### MASTER PROGRAM: ARCHITECTURE

**DEPARTMENT: ARCHITECTURE**  
**FACULTY: MASTER'S FACULTY**  
**DURATION: 12 SEMESTERS (360 ECTS CREDITS)**  
**PROFESSIONAL QUALIFICATION: ARCHITECT**  
**SPECIALIZATION: ARCHITECTURE OF BUILDINGS AND COMPLEXES**

#### COURSES:

#### Year I, Semester I

#### **Compulsory courses - Lectures/ Auditorium lecture and Practice courses (ECTS MERIT)**

##### **ARCM093 History of Art**

The lecture course introduces students to the specifics of pictorial and plastic arts and their development. Painting, sculpture, graphics, applied arts and basic historic processes are traced back in chronological order. The aim of the discipline is to develop a fundamental "visual fund" of images, characteristic works of art and prominent artists. Its task is to develop the spatial vision of the students, to support their visual culture and to lay the foundations of their aesthetic taste.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

##### **ARCM001 Descriptive geometry - Part I**

Methods of modeling the three-dimensional space on a plane: Monge projection, axonometric and perspective. Representation of the basic spatial elements and their mutual positions. Affine and metric problems. Representation of plane figures and spatial bodies with their plane sections and shadows. Mutual intersections of bodies. Rotational, straight linear surfaces and their shadows. Relations between the three models and representation of architectural objects and their shadows. The studying of descriptive geometry in a systematic course cultivates quickness of mind and imagination, expands the technical culture and raises the intellectual level of future architects.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

##### **ARCM003 Visual Means**

The aim of the discipline is to develop the spatial and aesthetic attitude of students to the architectural problems and objects, provided to them for representation. The graphic, artistic

and modelling skills, acquired by students, prepare them for their future education in architecture, as well as for adequate presentation of their projects, either graphical (through perspectives) or spatial (through models).

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Continuous assessment; ECTS: 3

### **Compulsory courses - auditorium training courses (no ECTS)**

#### **ARCM002 Training: Descriptive geometry - Part I**

Based on the basic principles of descriptive geometry students prepare assignments for displaying architectural forms with shadows, rectilinear surfaces and objects in perspective. Students acquire skills for drawing 3D objects manually or by CAD systems.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 0

#### **ARCM004 Training: Visual Means - Architectural drawings**

Main topics: Understanding the specificity of drawing shapes in architecture. The geometrical equivalent of forms and the specifics of the architectural forms. Analysis of the structural characteristics of the models. Analysis of their spatial characteristics. Setting forth the space and its organization as the basic phenomenon of the architectural profession.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Continuous assessment; ECTS:0

#### **ARCM005 Training: Architectural modeling**

Initial development of a core of basic concepts and lexis for the exercises with form creation. General and specific form creation. Architectural form. Architectural space. Tasks for spatial structure construction. Main schemes of organization derived from particular models – plant- and bio-forms-rhythm, symmetries.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Continuous assessment; ECTS: 0

### **Auditorium general courses for knowledge**

#### **OOK059 Introduction to Mathematics**

This course focuses on main topics like: Determinants, matrixes and systems of linear equations; Vectors – operations and applications; Straight-line and plane equations. Second-order areas; Series. Limit, continuity and derivative of a function – properties and applications; Indefinite and definite integrals – calculation and applications in geometry and physics; First-order differential equations. Second-order straight-line differential equations; Oiler's formula for polyhedron.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

#### **OOZK907 Language Culture and Academic Essay**

This course improves students' skills to write essays. Planning and organising, research reading, structure using thesis statements, introductions and conclusions, paragraphs, arguments, writing techniques, topic sentences and presentation.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **Auditorium general courses for skill (on subject by student's choice)**

**OOOK... Sport or Art Skills** These courses offer additional electives to the program on a short term basis and for developing future permanent courses.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Fail/Pass; ECTS: 3

#### **OOOK... Foreign language**

Students can choose to start between four levels of English learning depending on their previous training. The main aim is to develop the students' competency in reading, listening and writing argumentative type texts in the specific subject field, as well as oral skills in professional situations in the field of architecture. Throughout the course, students focus on the skills necessary for success in an academic environment including summary writing, paraphrasing, and documentation skills.

Academic hours: Studio-150hrs; Duration: 15 weeks/ 1 semester; Continuous assessment/ Exam; ECTS: 12

Total 420 academic hours/ 30 ECTS

## **Year I, Semester II**

### **Compulsory courses - Lectures/ Auditorium lecture and Practice courses (ECTS MERIT)**

#### **HACB240 History of Fine Art. XVII - XIX century**

Analysis of the various styles emerging during the XVII - XIX century. The spread of the Renaissance which is leading to consideration of the Mannerist, the Baroque, the Rococo, the Neoclassical, the Romanticism. How other works of art reflect on architecture formation in this period.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

#### **ARCM201 Descriptive geometry - Part II**

Part two of ARCM001 Descriptive geometry. Methods of modeling the three-dimensional space on a plane: Monge projection, axonometric and perspective. Representation of the basic spatial elements and their mutual positions. Affine and metric problems. Representation of plane figures and spatial bodies with their plane sections and shadows. Mutual intersections of bodies. Rotational, straight linear surfaces and their shadows. Relations between the three models and representation of architectural objects and their shadows. The studying of descriptive geometry in a systematic course cultivates quickness of mind and imagination, expands the technical culture and raises the intellectual level of future architects.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

#### **ARCM006 Architectural composition**

Several tasks are developed during the course with the aim of learning the principles and specificities of the architectural compositions. Students learn about the theory and the design of small scale architectural projects. Special attention is paid to the connection between inhabitation, program and context.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **Compulsory courses - auditorium training courses (no ECTS)**

#### **ARCM202 Training: Descriptive geometry - Part II**

Based on the basic principles of descriptive geometry students prepare assignments for displaying architectural forms with shadows, rectilinear surfaces and objects in perspective. Students acquire skills for drawing 3D objects manually or by CAD systems.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 0

#### **ARCM007 Training: Architectural composition**

The course serves as a hands-on introduction to drawing technique and theory, analytical drawing and diagramming, geometry and composition, three-dimensional representation in drawing and modeling. During the course several small architectural design projects are developed with emphasis on an original architectural composition and functional space plan.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

### **ARCM008 Training: Drawing**

The goal of this course is for students to improve their drawing techniques. Main topics are: Form and space. Spatial structures. Structural groups. Forms with weight. Structure of surfaces – polygonal, undulating. Space organization. Principles of formal composition. Functions of colour - spatial, structural, and representational. Techniques in drawing with watercolours, distemper and pastel. Independent creative decisions with these means of expression – colour, line, texture. In addition to that, students will draw: Structural and ornamental elements of remarkable architectural objects or park elements; Historic and modern buildings; Architectural landscape.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 0

### **Auditorium general courses for knowledge**

#### **O00K067 The Great Masters of Architecture**

An overview of the individuals and movements associated with the birth of modern architecture. Students learn about the most prosperous modern architects and their social, technological and aesthetic ambitions implemented in their contemporary projects.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

#### **O00K500 Computer Skills, PC**

The discipline develops basic theoretical and practical knowledge, necessary for the application of computer technologies. The lecture course discusses the basic concepts in hardware and software. Training is based on learning the principles of word-processing, using worksheets and databases. During the second half of the course students study the foundations of two-dimensional computer graphics through a CAD system for general use.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **Auditorium general courses for skill (on subject by student's choice)**

#### **O00K... Sport or Art Skills**

These courses offer additional electives to the program on a short term basis and for developing future permanent courses.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Fail/Pass; ECTS: 3

#### **O00K... Foreign language**

Students can choose to start between four levels of English learning depending on their previous training. The main aim is to develop the students' competency in reading, listening and writing argumentative type texts in the specific subject field, as well as oral skills in professional situations in the field of architecture. Throughout the course, students focus on the skills necessary for success in an academic environment including summary writing, paraphrasing, and documentation skills.

Academic hours: Studio-150hrs; Duration: 15 weeks/ 1 semester; Continuous assessment/ Exam; ECTS: 12

Total 420 academic hours/ 30 ECTS

## **Year II, Semester III**

### **Compulsory courses - Lectures/ Auditorium lecture and Practice courses (ECTS MERIT)**

#### **ARCM009 Introduction to the Theory and Practice of Architecture - Part I**

This course examines texts, movements, buildings, projects, and urban proposals in order to explain the structure of contemporary architectural theory. Students are introduced to the nature of architecture and its four main parties - aesthetics, function, structure and rationality. Topics addressed in the course are: Architectural composition and properties of the form; Ratio of architectural forms; Colour, texture and light; Symmetry and asymmetry; Tectonics and scale in architecture; Architectural graphics; Architectural design - stages in the creative process and design.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM011 Architectural Studio - City Architecture - Part I**

The course aims to introduce students to the history of the city as a social space from the very beginning of the first settlements to the modern development of the city as an economical, cultural and living environment. Students are acquainted to the ancient methods for building settlements and cities in ancient Greece and Rome and trace the historical development in the major buildings and ceremonial edifices in the Renaissance and Middle Ages. Introduced are the works of renowned scientists and architects exploring the utopian concept of the "ideal city". Students also learn about the development of landscape architecture and design of green areas in the cities. In the end the course examines the development of modern urban planning in view of the increasing number of urban population and the related environmental problems.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM013 Contemporary Architecture - Part I**

The period between the beginning of the 19th century and the middle of the 20<sup>th</sup> century is thematically covered. The process of emerging and strengthening the position of Architectural Rationalism and the formation of European and American Modernism are discussed. The nature of the most characteristic movements and doctrines up to the 1960's is revealed. The work of the most significant architects with a leading role in the recent history is described and studied.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM015 Construction of Buildings**

Students obtain theoretical knowledge and skills for the design of architectural structures, components and details of buildings, their structural, insulation and art functions, materials and ways of execution. Factors that influence building design performance will be explored: durability, efficiency, sustainability and health. Students learn the interrelation between the structure, technology and architectural composition in the synthesis of the architectural form. Basic knowledge is obtained for classical and the most widespread modern structures, components, materials and details, which architects may need in their practice.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM017 Informatics in Architecture and Urban Planning - Part I**

The discipline examines in a theoretical aspect the structure, abilities and characteristic features of design systems in the field of architecture. Students acquire practical knowledge and skills in three-dimensional potentialities of a conventional ArchiCad system. At the end of the semester a small course work is prepared.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM018 Fundamentals of Structural Mechanics - Part I**

Students acquire basic skills in: Theoretical Mechanics and Strength of Materials. In Theoretical Mechanics the accent is put on the types of systems of forces, the support reactions in cantilevers and free beams, and the methods of computation of forces in plane trusses. Strength of Materials considers the methods for computation of internal forces in cantilevers and systems of free beams. Students obtain basic knowledge of simple static models, stresses and detailing corresponding to pure tension and compression, pure shear, bending, etc.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

## **Compulsory courses - auditorium training courses (no ECTS)**

### **ARCM010 Training: Introduction to the Theory and Practice of Architecture - Part I**

In the training students apply design process acquired in the course of theoretical knowledge as a small architectural design project. First steps are made in the direction of independent design. Incorporating the basic principles of architectural composition, nature, tasks and stages of architectural design. As well as solving aesthetic problems, students also solve simple functional and structural tasks.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

### **ARCM012 Training: Architectural Studio - City Architecture - Part I**

Students enter the field of urban planning with small design tasks - a residential area with a community center and central area of a small town. Students have to present graphics, diagrams, schemes, drawings, and models in an appropriate scale for the urban design project. At the end of the course there is a project presentation.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

### **ARCM014 Training: Contemporary Architecture - Part I**

Through detailed examination of both creative works and critical texts from the fields of visual art, film, literature, philosophy and history, students will explore the ideas and the images of modernity.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Continuous assessment/ Exam; ECTS: 0

### **ARCM016 Training: Construction of Buildings**

Introduction to the main structures, elements and details of a building by visits to construction sites. Performance of different construction systems and details. Students have to develop a small coursework.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Continuous assessment/ Exam; ECTS: 0

## **Auditorium general courses for skill (on subject by student's choice)**

### **OOOK... Foreign language**

Students can choose to start between four levels of English learning depending on their previous training. The main aim is to develop the students' competency in reading, listening and writing argumentative type texts in the specific subject field, as well as oral skills in professional situations in the field of architecture. Throughout the course, students focus on the skills necessary for success in an academic environment including summary writing, paraphrasing, and documentation skills.

Academic hours: Studio-150hrs; Duration: 15 weeks/ 1 semester; Continuous assessment/ Exam; ECTS: 12

Total 450 academic hours/ 30 ECTS

## **Year II, Semester IV**

### **Compulsory courses - Lectures/ Auditorium lecture and Practice courses (ECTS MERIT)**

#### **ARCM019 Residential Buildings and Complexes - Part I**

The aim of the course is to introduce students to the modern trends in the erection of residential buildings in the context of urban environment. The main emphasis is put on the necessity of developing an ecological and humane housing which bears its specificity and identity. Design principles, criteria and practice investigated through case studies. Training is complemented with the development of two course-works.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM209 Introduction to the Theory and Practice of Architecture - Part II**

The course is a sequel of Part I - ARCM 009 and continues the already started topics for architectural composition and properties of the form - static and dynamic composition; Division of the form - rhythm in the architecture, color and texture; Optical corrections; Proportions - geometry, arithmetic, "Modular", The Golden ratio; Relation between architectural forms - unity and dependence; Scale in architecture - relative, optical, human; Tectonic systems in architecture.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM211 Architectural Studio - City Architecture - Part II**

This course allows students to immerse themselves in the magic of the structure of the city. They are told to respect the interests of the community, the private sector and the potential of the city (history, connection with nature, main roads, geopolitical location and importance). Students will gain the knowledge of how to develop: city centers, residential and mixed zones, business and technology parks, shopping areas, parks and sports areas, pedestrian zones, industrial zones, etc.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM213 Contemporary Architecture - Part II**

An introductory survey of contemporary international architecture that examines how design is responding to the technological change, environmental degradation, accelerating globalization of economy and media, and the politics of regional and cultural identity. The work of the most prominent artists, important buildings and architectural schools with a leading role in the recent history of architecture is described and analyzed.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM217 Informatics in Architecture and Urban Planning - Part II**

This intermediate level course provides a more in-depth theoretical foundation in architectural design by computer, including three-dimensional modelling, light and colour, rendering, image processing and animation. Practice is provided by weekly tutorial exercises and a term design project.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM218 Fundamentals of Structural Mechanics - Part II**

Students acquire basic skills and knowledge of Statics of Structures while studying frame statically determinate- and statically redundant structures used in architectural and engineering practice. They gain certain experience in the computation of internal forces in hinged beams and three-hinged frames as well as in learning methods for analysis of statically redundant systems (frame and continuous beam).

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **Compulsory courses - auditorium training courses (no ECTS)**

#### **ARCM020 Training: Residential Buildings and Complexes - Part I**

Students have to develop two course-works. First an illustrated critical analysis of already published projects of residential buildings and estates from the national or foreign practice. Second, a design project of an urban house respecting the national building codes. Students have to integrate the theoretical principles to the practical solutions of designing detached, semi-detached or terraced house in low-rise urban environment.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

### **ARCM210 Training: Introduction to the Theory and Practice of Architecture - Part II**

The training aims to familiarize students with the essence of architecture, architectural composition and design phases of the creative process. Students apply in practice what they have learned in lectures. Students have to design a small building (Showroom, Center for Cancer, Sports Club or Children's Center).

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

### **ARCM212 Training: Architectural Studio - City Architecture - Part II**

Students have to develop a central city area of a small town with mixed zones - residential and business areas. They have to include grouped housing, individual housing, parks and sports areas, pedestrian zones, shopping center and business center. Students can work in groups of two or three (optional). The course ends with project presentation.

Academic hours: Studio-60hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

### **ARCM214 Training: Contemporary Architecture - Part II**

The purpose of the training is for students to be acquainted with the various styles and their architectural elements. Students have to prepare a report about a contemporary architect or studio and analyze how their style evolved.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Presentation; ECTS: 0

### **Auditorium general courses for skill (on subject by student's choice)**

#### **OOOK... Foreign language**

Students can choose to start between four levels of English learning depending on their previous training. The main aim is to develop the students' competency in reading, listening and writing argumentative type texts in the specific subject field, as well as oral skills in professional situations in the field of architecture. Throughout the course, students focus on the skills necessary for success in an academic environment including summary writing, paraphrasing, and documentation skills.

Academic hours: Lectures-150hrs; Duration: 15 weeks/ 1 semester; Continuous assessment/ Exam; ECTS: 12

Total 480 academic hours/ 30 ECTS

## **Year III, Semester V**

### **Compulsory courses - Lectures/ Auditorium lecture and Practice courses (ECTS MERIT)**

#### **ARCM021 Architectural Structures - Part I**

The course focuses on the relation between structure and architectural form, design development, techniques, materials, environment, climate and geology. Different structure and construction systems are explored. Buildings with bearing walls: masonry walls, monolithic and precast reinforced concrete walls. Skeleton-structure buildings: monolithic reinforced concrete skeleton, precast reinforced concrete skeleton, steel skeleton. Roof structures of wide-span buildings: beam structures, frames, arches, thin-wall shell and folded structures, lattice structures, suspended and cable structures, pneumatic structures.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

#### **ARCM023 Urban Planning - Part I**

Contemporary urban planning – characterization of urban settlements and studying their basic elements. Developing a sense of urban form and space. Analysis of the main problems in



urban design: determination of the site location for designing a settlement, general plan structure and functional zoning. Skills of composition of the basic elements of the urban structure as well as skills for environmental observations, critical comments and analysis. Planning of central, residential and industrial zones, zones for recreation, communications and transport, engineering networks, main types of plans and design materials for settlement planning.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM025 Geodesy**

The aim of the discipline is to provide students with knowledge regarding geodetic instruments and methods of survey, including photogrammetric ones, and drawing-up of geodetic plans and maps. During the lecture course students become familiar with basic concepts of horizontal urban planning, road communications, buildings and installations, as well as with methods for their laying out. The knowledge acquired allows future architects to judge which geodetic tasks can be used in architectural design independently and for which ones the co-operation of geodesists is necessary.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM027 The Art of Construction (Reinforced Concrete) - Part I**

The course discusses the basic properties of reinforced concrete, the methods for determining the bearing capacity of reinforced concrete elements under characteristic loads and their construction as a part of the overall bearing structure. Types of reinforced concrete structures and the rational field of their application are covered. The foundations of structural seismic design and construction are discussed. The different types of inter-floor structures and their basic elements are classified in detail.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM029 Interior Design: History and Theoretical Introduction - Part I**

Familiarizing students with the most important principles and stages in interior design practise, its interaction with the exterior, volume spaces, color, light, texture. Major part of the course is a historical review of the interior styles and stylistic characteristics of the furniture. The course traces the development of the interior design and furniture throughout History.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM219 Residential Buildings and Complexes - Part II**

Contemporary housing theories and policies in the context of world issues. Design principles, criteria and practice investigated through case studies. Special attention is paid to high-density residential areas with a distinct character. Students are acquainted with innovative solutions in terms of urban structure as well as in planning of a large scale of dwelling types. They learn to create high-rise multi-family houses for different social standards. Upon completion of the study the students should be able to use modern design strategies for housing intervention in the context of the urban environment.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **Compulsory courses - auditorium training courses (no ECTS)**

#### **ARCM022 Training: Architectural Structures - Part I**

The course aims to establish the knowledge and skills of students in the design of buildings. They have to develop a project of a detached residential building with reinforced concrete structure.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

#### **ARCM024 Training: Urban Planning - Part I**

Project of a small and non complex settlement which sets the students the following tasks: main methods for analysis of environment; conditions, properties and structure of settlements,

of their economic, ecological, social, spatial, historic and other features; studying the main natural and anthropogenic factors, influencing the development of the settlement structure; formulation of the fundamental strategy for the development of the settlement; preparing a layout and regulation plan in compliance with the effective legislation.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

### **ARCM026 Training: Geodesy**

The purpose of this training is for students to expand and assimilate their theoretical knowledge as well as to gain practical skills for: geodetic methods and instruments for horizontal and vertical measurements, acquaintance with and verification of geodetic instruments; comparative analysis of errors and accuracy of geodetic measurement results; methods and means of their mathematical processing; preparation, organization and execution of geodetic works for creation of large-scale topographic maps.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 0

### **ARCM028 Training: The Art of Construction (Reinforced Concrete) - Part I**

Students have to develop several course tasks (in graphic form) for an overall design of an office building storey. Four typical structural members are designed: floor slabs – one-way and two-way reinforced; continuous beam; two columns with foundations, concrete and reinforced concrete; one flight of stairs. The projects are presented with static analysis and dimensions, as well as in graphic form (reinforcement plans of the elements). Connections are studied using calculations, design aids, rules and the latest design standards and codes.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

### **ARCM094 Training: Ancient Architecture**

Architecture during long period of cultural history centered around the Mediterranean Sea, comprising the interlocking civilizations of ancient Greece and ancient Rome, collectively known as the Greco-Roman world. It is the period in which Greek and Roman literature (such as Aeschylus, Ovid, Homer and others) flourished.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 0

### **ARCM220 Training: Residential Buildings and Complexes - Part II**

The aim of the coursework is to integrate the theoretical principles to the practical solutions of designing high-rise multi-family houses in urban environment. Students develop skills for work with normative documents, for taking into account the influence of the environment and modern schemes of living patterns, for considering the possibilities for application of different materials, technologies and innovative solutions.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

## **Practical work or additional courses (ECTS MERIT)**

### **ARCM321 Project: Architectural Structures - Part I**

The course aims to establish the knowledge and skills of students in the design of buildings. They have to develop a project of a detached residential building with monolithic skeleton reinforced concrete structure.

Academic hours: -; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 3

### **ARCM323 Project: Urban Planning - Part I**

Project of a small and not complex settlement which sets the students the following tasks: main methods for analysis of environment; conditions, properties and structure of settlements, of their economic, ecological, social, spatial, historic and other features; studying the main natural and anthropogenic factors, influencing the development of the settlement structure;

formulation of the fundamental strategy for the development of the settlement; preparing a layout and regulation plan in compliance with the effective legislation.

Academic hours: -; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 3

### **ARCM327 Independent study: The Art of Construction (Reinforced Concrete) - Part I**

Students are developing their course projects under their tutor directions. Projects are presented with static analysis and dimensions, as well as graphic form (reinforcement plans of the elements).

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 3

### **ARCM419 Project: Residential Buildings and Complexes - Part II**

The aim of coursework is to integrate the theoretical principles to the practical solutions of designing high-rise multi-family houses in urban environment. Students develop skills for work with normative documents, for taking into account the influence of the environment and modern schemes of living patterns, for considering the possibilities for application of different materials, technologies and innovative solutions.

Academic hours: -; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 3

Total 390 academic hours/ 30 ECTS

## **Year III, Semester VI**

### **Compulsory courses - Lectures/ Auditorium lecture and Practice courses (ECTS MERIT)**

#### **ARCM031 Public Buildings and Complexes - Part I**

The prevailing types of public buildings – historic development, modern trends and principal norms, are presented. The course aims primarily to familiarize students with the greatest achievements in every area of public buildings and recognize architects who have contributed most to new concepts and models which ones have made significant breakthroughs in conceptual thinking and functional solutions. The emphasis is on developing basic types of public buildings in the last quarter of the twentieth century and early twenty-first century.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

#### **ARCM095 Architecture of Byzantium, Romanesque and Gothic**

Architecture during the medieval period of cultural history in the different regions of Europe,

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Continuous assessment/ Exam; ECTS: 3

#### **ARCM221 Architectural Structures - Part II**

Students are acquainted with modern innovative structures - frames, fabrics and shells. They are presented with design options that have not previously existed, especially with long spans and large, single building volumes. The course deals with the applications, analysis, economics, design and fabrication of modern lightweight structures.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

#### **ARCM223 Urban Planning - Part II**

The essence and tasks of urban planning. Urban planning classification, functional typology and major structural elements in inhabited territories. Problems and analysis in urban planning, tendencies in development, zoning, technical infrastructure, ecology and sustainable development. Major principles in urban planning, positioning, street networks, technical infrastructure, crossroads, squares, pedestrian sections, parking lots and garages. Zone partitioning of urban spaces – residential, public services, industrial, leisure and green zones distribution. Reconstruction and renovation in urban planning, relevant factors affecting the urban environment, aesthetic considerations and compositional solutions.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM227 The Art of Construction (Steel and Wooden Structures) - Part II**

The discipline covers the basic concepts, connected with the design of steel and timber structures. Special attention is paid to the structural composition, morphology and realization of the different parts in the structural complex. The foundations of calculation and dimensioning of steel and timber elements and structural parts are discussed. Joints with mechanical fasteners and glued joints for connection of timber structures are considered along with the design features for built-up members with deformable fasteners. The lectures outline the basic detailing principles for solid and lattice timber structures as well. Students acquire skills to dimension and detail basic members and joints of the metal structures and obtain basic knowledge in the field of structural layout and structural shaping. The goal of the discipline is to develop knowledge for assessment of the abilities of the structures and to realize efficient co-operation with engineers-designers.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM229 Interior Design: History and Theoretical Introduction - Part II**

The course is sequel of Part I – ARCM029 and continues the already started topics for design and its interaction with the exterior. The lectures introduce basic design research methods, the design process, environmental behaviour theories and drafting techniques. The new era of construction methods and new technologies are explored. Familiarization with modern materials and their application in practice. Students are acquainted with the world's most famous designers and distinguished authors in the field of interior design.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

## **Compulsory courses - auditorium training courses (no ECTS)**

### **ARCM032 Training: Public Buildings and Complexes - Part I**

The foundations of the design of buildings, justified from a functional, town planning and compositional point of view, are presented with detailed exploration of design project -small public building. At the end of the term, students have to present all drawings in appropriate scale (schemes, diagrams, floor plans, sections, elevations, details, model or 3D visualisation).

Academic hours: Lectures-60hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

### **ARCM203 Architectural art during history**

The students will know the main methodological principles for architectural creativity; objectives, psychology, the mechanisms of the architectural creative process; They can put into practice the basic methodological principles in architecture and achieve a certain degree of control of their behavior in the creative process.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

### **ARCM222 Training: Architectural Structures - Part II**

The course aims to establish the knowledge and skills of students in the design of buildings. They have to develop a project of a building with long spans and large building volumes.

Academic hours: Lectures-45hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

### **ARCM224 Training: Urban Planning - Part II**

Project of an individual area of the urban territory with more complex problems of the urban environment and territory. The goal is to design a complex of buildings with high intensity and mixed functions in scale 1: 500. Special attention is paid to the territorial, communicational,

functional, spatial, architectural, artistic, social and cultural, ecological and technical and economic problems and their optimum solution in the project.

Academic hours: Lectures-45hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

### **ARCM228 Training: The Art of Construction (Steel and Wooden Structures) - Part II**

Fundamentals of a structural project of one-storey single-span building with a steel bearing structures are being developed. Attention is placed on detailing the joints of the steel structure. A joint of timber truss is developed as a separate task. The aim of the project is to implement the knowledge obtained from lectures in order for students to acquire practical skills.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

### **Practical work or additional courses (ECTS MERIT)**

#### **ARCM331 Project: Public Buildings and Complexes - Part I**

The foundations of the design of buildings, justified from a functional, town planning and compositional point of view, are presented with detailed exploration of design project - small public building. At the end of the term students have to present project drawings in appropriate scale (schemes, diagrams, floor plans, sections, elevations, details, model or 3D visualisation).

Academic hours: -; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 3

#### **ARCM421 Project: Architectural Structures - Part II**

The course aims to establish the knowledge and skills of students in the design of buildings. They have to develop a project of a building with long spans and large building volumes.

Academic hours: -; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 3

#### **ARCM423 Practice Work (On-spot training): Urban Planning Part II**

Field trip

Academic hours: -; Duration: 15 weeks/ 1 semester; Form of assessment: Fail/Pass; ECTS: 3

#### **ARCM427 Independent study: The Art of Construction (Steel and Wooden Structures) - Part II**

Fundamentals of a structural project of one-storey single-span building with a steel bearing structures are being developed. Attention is placed on detailing of joints of the steel structure. A joint of a timber truss is developed as a separate task. The aim of the project is to implement the knowledge obtained from lectures in order for students to acquire practical skills.

Academic hours: -; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 3

Total 390 academic hours/ 30 ECTS

## **Year IV, Semester VII**

### **Compulsory courses - Lectures/ Auditorium lecture and Practice courses (ECTS MERIT)**

#### **ARCM035 Landscape architecture**

The lecture course is developed in three parts: 1. History of parks and gardens from antiquity to the 20th century. Changes in landscape and the influence of philosophy, religion, town planning and art. 2. Basic principles of composition in the park architecture and participation of the different elements – relief, water, vegetation, structural elements, lane network, architectural and ornamental objects and facilities. With the help of analyzing contemporary realizations basic knowledge about developing diverse park-planning assignments is provided.

3. 'Nature', 'Ecology', and 'Landscape'. Basic knowledge of landscape and landscape planning. The most important provisions of the current national environmental legislation and the European conventions signed by the Bulgarian government are presented. The methods used in the development of landscape plans as well as plans for management of landscape and protected territories are outlined.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM037 Industrial Buildings and Complexes - Part I**

Basic requirements for the design of industrial buildings and territories. Concise history of industrial building architecture. Industrial territories – determination of a region, relationship between industry and the settlement, planning and construction of industrial zones and enterprises (basic principles, transport, engineering and social infrastructure). Industrial buildings and engineering equipment – main types (industrial, auxiliary, service), characteristics, function, structure, architectural image. Ecological problems of industrial territories and enterprises. Working environment in industry – main factors, organization and structure, elements of interior, lighting, colouring.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM039 Architectural and Interior Design - Part I**

Course about modern trends in interior of residential and public buildings. Current trends and perspectives in furniture structures and elements of immobile furniture. Interior and furniture for disabled. Examples from the work of prominent architects, working in the field of construction of interior spaces.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM041 Architecture and Historical Context**

The course introduces students to the theory and practice of architectural context. Analysis of the role of the historical context of architectural quality creative product; specific context of different spatial levels; dialogue between historical layers in the historic environment and its architectural possibilities for interpretation. Methodological approach is presented for architectural creativity in historical context. Analysis of outstanding examples of the World and the Bulgarian experience with numerous multimedia illustrations. Students develop sensitivity to the identity of place and historical context of the built environment, they acquire methodical approach to architectural creativity, inspired by the characteristics of the environment and its values.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM043 History of Architecture XV-XVIII**

The course examines the styles of the Renaissance along with Baroque, Rococo and Classicism, manifested and spread over the European countries (Italy, France, Netherlands, Germany, Spain, Austria). Special attention is paid to the social environment, which determines the character of culture and architecture, to the artistic criteria and composition devices, the typology, approach and proportions of the corresponding period. Detailed study is made upon the relationship between nature and architecture, as well as the problems of living environment.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM231 Public Buildings and Complexes - Part II**

The course aims to enrich students' knowledge about the function and performance of the most widespread public buildings for trade, culture, sport, transport. The second part of the course emphasises on "philosophy", symbolic, and other conceptual problems and problems of the creative process. Morphology and composition of: libraries, schools, universities, cultural centers, theaters and museums; administrative and business buildings, banks; bus stations and airports; stadiums and sports halls, the importance of these buildings in the layout of urban spaces: malls, residential areas, recreational areas and their symbolic role in the urban identity.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **Compulsory courses - auditorium training courses (no ECTS)**

#### **ARCM036 Training: Landscape architecture**

The project is developed in two parts – theoretical and practical, through independent investigations, seminars and project work. The investigation aims at determining the influence of human activity on the components of landscape and at supporting decision-making in relation to the planning of the territory. The design incorporates – urban and ex-urban parks, specialized parks, inter-area spaces and recreation zones. During seminars and discussions different problems, related to the park composition, ecological balance, the structuring and zoning of the park territory, the inclusion of the main landscape elements (relief, water, vegetation), the volume and spatial development of the park, the selection and composition of vegetation are covered. The project is developed using a technique chosen by the student – black-and-white graphics, coloured in accordance with the normative requirements, and is presented in a size, determined in the planning assignment.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

#### **ARCM038 Training: Industrial Buildings and Complexes - Part I**

The project introduces students to the specific field of design of industrial buildings. The subject of the project is "Design of modular structures for a multifunctional industrial enterprise". It is developed in three stages: preliminary investigation of volume and spatial structural units for industrial enterprises in horizontal plan and in profile; development of a concept on a specified assignment in two options; development of a final preliminary design of a multifunctional industrial enterprise on the basis of the investigations and the developed concept.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

#### **ARCM040 Training: Architectural and Interior Design - Part I**

Interior design project in conceptual stage. Students have to design residential interior. Students have to develop functional solution, plans, elevations and details in 1:50, 1:20 to 1:5.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

#### **ARCM042 Training: Architecture and Historical Context**

Students have to develop a design coursework in real historical environment of the city with a keen historical context. The aim is for students to apply their knowledge of the course ARCM041 "Architecture and Historical Context ". The emphasis is on contemporary contextual thinking, sensitivity to light and the ability of its interpretation in contact with the real environment.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

#### **ARCM045 Practical training: Modelling**

The course includes making of physical models and practical exercises. Laying the foundations of architectural design and modeling in a team. Building a model on a given architectural situation under certain conditions and materials. Designing an object in architectural environment.

There are two course assignments: model of a site and model of a specific building in it.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

#### **ARCM232 Training: Public Buildings and Complexes - Part II**

The variety of types, decisions and approaches to the design of typical public buildings are presented. Students have to develop a detailed project of a public building. At the end of the

term students have to present all drawings in appropriate scale (schemes, diagrams, floor plans, sections, elevations, details, model or 3D visualisation).

Academic hours: Studio-60hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

### **Practical work or additional courses (ECTS MERIT)**

#### **ARCM335 Project: Landscape architecture**

Volume and spatial development of an urban park.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 3

#### **ARCM337 Project: Industrial Buildings and Complexes - Part I**

Design of a building for a multifunctional industrial enterprise.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 3

#### **ARCM341 Project: Architecture and Historical Context**

Methods of architectural design in historical context.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 3

#### **ARCM431 Project: Public Buildings and Complexes - Part II**

Students have to develop a detailed project of a public building.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 3

Total 510 academic hours/ 30 ECTS

## **Year IV, Semester VIII**

### **Compulsory courses - Lectures/ Auditorium lecture and Practice courses (ECTS MERIT)**

#### **ARCM046 Vacation architecture (in mountain, seaside and spa resorts)**

The course presents the systematization of the typology of the objects of recreational architecture. Analysis of examples from leading Bulgarian and world practices. The course is taught by lecturers both from the Department and the industry. It acquaints students with the current legislation, the problems and trends in the erection of buildings and estates for temporary occupation (hotels, holiday resorts, hostels, homes for aged people, etc.).

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

#### **ARCM048 Preservation of Architectural Heritage**

The purpose of the discipline is to develop basic knowledge of the problems of preservation of architectural heritage. The types of cultural monuments and their legal protection within the national preservation system are discussed. The historic evolution of the ideas of continuity is presented. The approaches to preservation of the architectural heritage on different levels: individual monuments, historic towns and historic territories, are presented with examples. The synthesis between arts and historic environment is examined.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

#### **ARCM050 History of Bulgarian Architecture**

The aim of the discipline is to explain correctly the Bulgarian architectural heritage; to elucidate the way of its development through the centuries, its national originality, the favourable influence of the neighbouring countries, the elements of near and remote cultures



woven into its texture; to determine correctly and objectively the most characteristic and valuable architectural monuments, which mark out the development of architecture and culture.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM051 Building Installations**

The course introduces students to the scope, content, consistency and requirements for overall dimensions, location and basic principles of the design and installations of plumbing systems, electricity supply, the selection of heating, ventilating, air conditioning systems and other building installations. The main focus of the course is on different types of installation networks, their purpose and their components included in the construction of buildings and facilities; basic technical, regulatory and structural requirements for different types of installations and design principles and design of various engineering systems are studied.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM237 Industrial Buildings and Complexes - Part II**

The course covers issues of architectural typology of industrial buildings. Overlapping questions about the impact of technology on typological features of the buildings. Discussed are the characteristics of buildings from various industries. Current problems in the industrial areas planning; modern types of manufacturing enterprises and compounds; problems of the working environment, ecology and energy efficiency of industrial buildings and territories. The educational objective of the course is to give knowledge about the impact of the function requirements for workplace and environmental on contemporary architectural solution.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM239 Architectural and Interior Design - Part II**

Economic development of design in the contemporary world; Formation and current status of the design; Types of design; Types of furniture used in residential and public interior – sitting furniture, storage, beds, tables and multi-functional furniture; Emotional impact of internal spaces and components to the architectural image; Architectural design and design for the built environment; Design of architectural environment as intellectual property; Strategy and tactics; Method of artistic design for the built environment; Parts of the project; specification; Composition and harmonization of the form; combinatory; Perception of form; Complex design and formation of urban interior for the public;

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **Compulsory courses - auditorium training courses (no ECTS)**

#### **ARCM047 Training: Vacation architecture**

Students have to develop a project of a building for temporary occupation with a distinct character. They are expected to provide innovative and functional solutions. Current legislation relating to the design and operation of buildings for recreation is presented.

Academic hours: Lectures-60hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

#### **ARCM049 Training: Preservation of Architectural Heritage**

The project aims at developing research skills and skills for management of the relationships in the integrated historic environment. The assignments are real and reflect current problems. They are selected in a dialogue with the local authorities of historic settlements. A thorough analysis of the historic environment is made, alternative models for its preservation and development. The aim is to implement basic knowledge on approach to the conservation of cultural heritage in historic environment by creating skills for relations between preservation of architectural heritage and creating contemporary architecture that respects the inherited values.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

### **ARCM052 Training: Handicapped-Accessible Architecture**

The course aims to teach young architects how important it is for their design to be accessible to all. Current trends and perspectives in architecture, urban environment, furniture structures and elements of accessible furniture. Architecture, interior and furniture for the disabled. Norms and current legislation. The lectures are accompanied with practical training. Student have to do a small project - to transform an old building into special needs accessible – while respecting and citing the current legislation. Students also have to present examples for good and bad design for accessible urban environment.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

### **ARCM238 Training: Industrial Buildings and Complexes - Part II**

The second project consists of two modules: "Planning of an industrial territory as a part of the settlement organism" and "Preliminary design of an industrial enterprise with a specified production programme and a lot of the developed territory". Training includes preliminary investigation of infrastructure, ecological problems, working resource and other parameters of the industrial zone in a definite settlement, as well as the stages, norms and techniques for the design of a definite kind and type of enterprise in this environment.

Academic hours: Lectures-60hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

### **ARCM240 Training: Architectural and Interior Design - Part II**

Students have to design a commercial interior. They go through the following phases of design of interior space: investigation, functional scheme, interior decision, visualised with plans and models, elements of mobile and immobile furniture. Students have to develop functional solution, plans, elevations, details in 1:50, 1:20 to 1:5, model or 3D visualization.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

### **Practical work or additional courses (ECTS MERIT)**

#### **ARCM346 Project: Vacation architecture (in mountain, seaside and spa resorts)**

Students have to develop a project of a building for temporary occupation with a distinct character.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 3

#### **ARCM348 Project: Preservation of Architectural Heritage**

Design, restoration and preservation of a building or/and historical site.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 3

#### **ARCM437 Project: Industrial Buildings and Complexes - Part II**

Students have to design an industrial enterprise with a specified production programme and a lot of the developed territory.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 3

#### **ARCM439 Project: Architectural and Interior Design - Part II**

Design of a commercial interior.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 3

Total 510 academic hours/ 30 ECTS

## **Year V, Semester IX**

### **SPECIALIZATION: ARCHITECTURE OF BUILDINGS AND COMPLEXES**

#### **Compulsory courses - Lectures/ Auditorium lecture and Practice courses (ECTS MERIT)**

### **ARCM056 Contemporary Technologies in Architecture**

The course shows the role of the new technologies in architectural design. The students master the norms, techniques and methods of the energy efficient investigation, assessment, design and renovation of buildings. The course covers problems of the influence of space organisation, planning characteristics and properties of building materials and products on human health in the occupation sphere. Innovative materials, active systems, their principle device and use in different cases. Building's skin transformation into a solar power plant.

Principles of passive solar heating, passive cooling and daylighting by solar orientation. New life of old materials- recycling.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM058 Specialized Areas - Business Park**

The objectives of the course are to familiarize students with the possibilities of the spatial distribution of different use areas, their urban characteristics, infrastructure and volume relationships. While working with a quality achievable as intended volumes and silhouettes.

Topics: 1. Peculiarities of the developed area (size, shape, topography, existing buildings and infrastructure) 2. Study and characterization of Tangent territories 3. Study and characterization of existing communication infrastructure and public transport 4. Characteristic peculiarities of the residential area 5. Characteristic peculiarities of public service area 6. Characteristic peculiarities of the university area 7. Characteristic peculiarities of the industrial zone

8. Peculiarities of the main communication artery 9. Peculiarities of sport and recreation zone

10. Peculiarities of the pedestrian zone, road and lane network

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM060 Investment Projects Management on Behalf of the Investor**

This course is an overview of the Architectural Professional Practice and the relationships between professionals and others. Forms of partnerships, rules of professional conduct, the constituents of an enforceable contract, professional liability, client-architect relations. Factors affecting both the cost of construction and the ability of an architect to conduct a viable business will be presented.

1. Responsibility and obligations of the public investor/ entity. 2.

Types of construction activities, valuation of the site and secure financing. 3. Separation of design, implementation and control of construction. 4. Selection of the construction manager

above and below the thresholds of the EU. Award of project management; legal relationship between the contractor and the manager; responsibilities for: quality, deadlines, costs. 5.

Election of designers. Award design. Legal relations between client and designer. 6. Election of general contractor; legal relationship between a contractor or subcontractor, designer,

manager and developer. 7. Project estimate, documentation, project approval, obtaining

building permits. 8. Associate for planning services. 9. Tenders for construction execution.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM054 Architectural Structures - Reconstruction and Retrofitting of Buildings**

After completing the course students have the knowledge of how to approach reconstruction of buildings, phases, content design. They know how to determine the causes and nature of the damage and deformation of the building structure and its main components, methods of analysis and evaluation of architectural structures and elements. Methods for restoration, strengthening and adapting to new functional and aesthetic requirements. New materials and technologies. With this knowledge future architects can design reconstruction of buildings and guide a design team. Moreover, they can assess the completeness of a project for reconstruction of a building and manage its implementation.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **Compulsory courses by student's choice 1 of 4 (ECTS MERIT)**

#### **ARCM062 Legal and Regulatory Basis in Architecture and Urban Planning**

Basic knowledge of current legislation in the field of architecture and urban planning. The classification of types of construction.

The course aims to prepare students for their future work as architects with the regulations required in the design. Hierarchy of legal documents; Content and structure of normative documents; Main stages in the investment design and construction.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM063 Colours in Architecture**

The course starts with a brief historical overview of the theory of light and colour, reveals the physiological, psychological and emotional (spiritual) influences on human beings, and studies the main principles of colour solutions in the interior and exterior. Through practical exercises the students acquire skills in space analysis, taking into account its purpose and the impression it is meant to give. There are practical advises in relation with the normative basis and the colour influence of the different building materials.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM064 Fito Design**

The course enriches students' knowledge about nature and typical features of interior planting (Fito design), green walls and green facades. The significance of green plants in the interior, common principles in composition of groups of plants in different places and specific requirements (biological, compositional, aesthetic) related with ecological features of the plants.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM487 The presence of artistic glass in architecture. History and modernity**

The course represents glass as irreplaceable material in architecture- both in the interior and the exterior. A brief historical review of the glass: antiquity and Middle Ages; period of development and zenith during the Gothic; Secession- next flourishing period; Glass material in modern architecture.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **Compulsory courses - auditorium training courses (no ECTS)**

#### **ARCM057 Training: Contemporary Technologies in Architecture**

Students have to present a research about the most innovative solutions and technologies in modern architecture and their application; Examples from the Bulgarian and foreign architecture.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 0

#### **ARCM059 Training: Specialized Areas - Business Park**

Project of an urban territory with more complex problems. First part of the course work is a detailed research of the area. Special attention is paid to the size, shape, topography, existing buildings, infrastructure, public transport, green areas, Tangent territories, social, cultural, ecological and economic problems and their optimum solution in the project.

After this student can start with their design of the site with buildings with high intensity and mixed functions in scale 1: 500. In addition, they have to present all urban silhouettes of the developed area, functions, communications, infrastructure, pedestrian zones, sport and recreational zones, connection with the tangent territories.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

#### **ARCM061 Training: Investment Projects Management on Behalf of the Investor**

Students have to apply the knowledge gained from the lectures by developing two assignments: 1. Development of a proposal for a particular site 2. Preparation of a draft contract for partial execution of the services from the proposal.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Continuous assessment/ Exam; ECTS: 0

### **ARCM055 Training: Architectural Structures - Reconstruction and Retrofitting of Buildings**

Students have to develop a project for reconstruction of a building in a dense urban environment. They are expected to provide innovative methods for restoration, strengthening and adapting to new functional and aesthetic requirements and standards through new materials and technologies. The knowledge of current legislation in the field of architecture and urban planning is assessed.

Academic hours: Studio-60hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

### **ARCM204 Residential Policy and Living Environment**

The course presents the social, spatial and financial models for improving the quality of living and cost of housing while preserving marginal increase in current expenditure on maintenance, and basic aspects of housing and energy efficiency.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 0

### **ARCM486 Specialized Modeling and Visualization with ArchiCad and ArtLantis Studio**

The aim of the course is upgrading the knowledge and skills of architecture students with specialized tools for modeling and photorealistic visualization in ArchiCad 19. Advanced processing and visualization of three-dimensional models in ArtLantis Studio and technology to create photorealistic visualizations and animations.

The course is designed for students who are familiar with the fundamentals of working with ArchiCad and ArtLantis and does not address the basic techniques in the programs.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Continuous assessment/ Exam; ECTS: 0

### **Practical work or additional courses (ECTS MERIT)**

#### **ARCM355 Project: Architectural Structures - Reconstruction and Retrofitting of Buildings**

Students have to develop a project for reconstruction of a building in a dense urban environment.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 3

#### **ARCM357 Independent study: Contemporary Technologies in Architecture**

Students have to present a research about the most innovative solutions and technologies in the modern architecture and their application Examples from the Bulgarian and foreign architecture.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Continuous assessment/ Exam; ECTS: 3

#### **ARCM359 Project: Specialized Areas - Business Park**

Project of an urban territory with more complex problems.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 3

#### **ARCM361 Project: Investment Projects Management on Behalf of the Investor**

Students have to apply the knowledge gained from the lectures by developing two assignments: 1. Development of a proposal for a particular site 2. Preparation of a draft contract for partial execution of the services from the proposal.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Continuous assessment/ Exam; ECTS: 3

## **Practical work or additional courses by student's choice 1 of 4 (ECTS MERIT)**

### **ARCM362 Independent study: Legal and Regulatory Basis in Architecture and Urban Planning (Individual work)**

The course aims to prepare students for their future work as architects with the regulations required in the design. Hierarchy of legal documents; Content and structure of normative documents; Main stages in the investment design and construction.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Continuous assessment/ Exam; ECTS: 3

### **ARCM363 Independent study: Colours in Architecture**

Students have to present an essay with visual examples about the use of light and colour in architecture.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Continuous assessment/ Exam; ECTS: 3

### **ARCM364 Independent study: Fito-Design**

Students have to develop a project of home or office and add typical features of interior planting (Fito design), green walls. They have to present examples, details and manufacturers.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Continuous assessment/ Exam; ECTS: 3

### **ARCM587 Independent study: The presence of artistic glass in architecture. History and modernity**

Students have to a report with visuals examples about the use of artistic glass material in architecture.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Continuous assessment/ Exam; ECTS: 3

Total 510 academic hours/ 30 ECTS

## **Year V, Semester X**

### **Compulsory courses - Lectures/ Auditorium lecture and Practice courses (ECTS MERIT)**

#### **ARCM065 Contemporary Urbanism - Part I**

The lecture course emphasises on current and non-standard urban planning concepts; the evolution of the settlement network; housing and energy policy; alternative of the post-industrial society; subterranean urban planning; urban design and the architectural language of the town; public urban spaces; relations "old" - "new" in urban centers; ecology and sustainable development. Attention is paid to the specifics of reconstruction of a developed urban environment and planning of undeveloped sites

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

#### **ARCM067 Architecture of Buildings and Complexes - Part I**

The objectives of the course are: to explore building complexes for permanent and temporary occupation, their organization and structure in characteristic spatial urban context; the main principles of formation and development of building complexes; typology of residential buildings for permanent and temporary occupation; applied aspects of morphology and technologies in contemporary buildings.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

#### **ARCM069 Reconstruction of Historical Buildings and Neighborhoods - Part I**

The discipline extends at different levels the professional knowledge of architectural art in a

historic environment. The course aims to form specialized knowledge and practical skills for protection and management of the architectural heritage; revitalization and rehabilitation of historic cities and territories. The international system for preservation of architectural heritage and the world experience in the field of town-planning protection and renovation of historic settlements are presented. The methodological approach to drawing plans for preservation on urban and territorial level is discussed. Remarkable examples of the world and the Bulgarian urban and architectural practices are presented.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **ARCM072 Architectural Photography**

This course presents the art of photography. It gives the students general information about types of cameras and lenses, photographic films and photo paper types. It shows students the possibilities of light as an artistic tool, the role of exposure to light in the reproduction of tones and colors. It gives the basic principles in the construction of photographic composition, the choice of storyline and meaningful center. Students learn the specifics of architectural photography, foreground, tonal difference between subject and background, light focus, contrast, depth of imaging space, illumination for different types of texture. This is accomplished in various academic applications, site and model documentation, portfolio and presentation.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Continuous assessment and presentation; ECTS: 3

### **ARCM073 Parks and Gardens**

The course gives a knowledge about the nature and characteristics of the different categories of green areas- National parks, protected areas, historic parks. The historical development, specifics of the composition and functional zoning, general and specialized legislation, the importance of the green system of settlements are examined. New trends in landscape architecture and possibilities of application in contemporary planning of parks and gardens are discussed.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **Compulsory courses - auditorium training courses (no ECTS)**

#### **ARCM068 Training: Pre-Graduation Project I - Architecture of Buildings and Complexes (working phase)**

Students have to develop a fragment from a small project they have previously designed in a working phase. The course is training for Pre-Graduation Project II. Students acquire knowledge and skills for continuing the conceptual stage in the working phase design of buildings. When developing the project all requirements are taken into consideration and legislation for working in detailed architectural design phase.

Academic hours: Studio-150hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

#### **ARCM075 Information Technologies in Architecture - Part II - 3D Studio Max, ArchiCad, ArtLantis and MaxonForm**

The course aims to introduce students with the opportunities for three-dimensional modeling and create photorealistic images with 3D Studio MAX, MaxonForm and ArtLantis. The creation and application of materials for the introduction of three-dimensional models created by other software, and basic options for creating animations are discussed. At the end of the semester students develop a coursework.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Continuous assessment/ Exam; ECTS: 0

### **Practical work or additional courses (ECTS MERIT)**

#### **ARCM367 Project: Architecture of Buildings and Complexes - Part I**

Students have to develop a course project applying the knowledge they have acquired in the lectures. They have to design a public or residential building/complex.

Academic hours: Studio-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 3

### **ARCM368 Project: Pre-Graduation Project I - Architecture of Buildings and Complexes**

Students have to develop a course project applying the knowledge they have acquired in the lectures. They have to design a public or residential building/complex.

Academic hours: Studio-120hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 12

Total 480 academic hours/ 30 ECTS

## **Year VI, Semester XI**

### **Compulsory courses - Lectures/ Auditorium lecture and Practice courses (ECTS MERIT)**

#### **ARCM078 Contemporary Architecture and Architectural Criticism**

The subject consists of architectural analysis of the most important buildings and architectural schools since World War II. Against the backdrop of the larger interdisciplinary field known as cultural studies, this course will trace and examine critical bodies of theory that have influenced the development of contemporary architectural thought and practice. It presents a survey of contemporary architectural theory that focuses on the relationship between seminal theoretical texts drawn from outside of the architectural discipline and critical developments in contemporary architectural theory and practice. The course is intended to provide students with an advanced knowledge base in contemporary architectural theory while acting as a support for thesis and other forms of advanced architectural research. Specific criteria includes:

aesthetics; proportion; functionality; architectural style; choice and use of building materials; built environment or context; sustainability.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

#### **ARCM080 Urban Sociology**

The course is structured in three parts: 1. Historical and theoretical aspects – tracing back the development of sociology as a science about society and its sociological structure. 2. Theoretical and methodological aspects – presents urban sociology as natural relationships between the elements of the main spheres of human activity: occupation, services, labour, recreation and communication. 3. Methodological and practical aspects – discusses the application of ESI (empirical sociological investigation) in architectural design, as well as the role of the architect in social communication. The lecture course finishes with summarizing the most important and characteristic accents in urban sociology.

Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

#### **ARCM083 Pre-Graduation Project II - Architecture of Buildings and Complexes**

Students are encouraged to design building types that enable them to deal with ideas, interpreted in architectural forms with maximum freedom of views and preferences. Students acquire knowledge and skills to work in creative terms. The focus of the acquired properties is on the artistic side of the architectural design.

Academic hours: Lectures-60hrs; Duration: 15 weeks/ 1 semester; Continuous assessment/ Exam; ECTS: 6

#### **ARCM267 Architecture of Buildings and Complexes - Part II**

The course improves students' knowledge about the design of different public buildings. Types, characteristics and versatility of public buildings. Lectures clarifying the function and



performance of the building are included. The second part of the course focuses on the "philosophy", symbolism, conceptual and creative problems. Students master the conceptual foundations of public buildings and the ability for significant motivation of creative behavior. Academic hours: Lectures-30hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Exam; ECTS: 3

### **Compulsory courses - auditorium training courses (no ECTS)**

**ARCM084 Training: Pre-Graduation Project II - Architecture of Buildings and Complexes** Students are encouraged to design building types that enable them to deal with ideas, interpreted in architectural forms with maximum freedom of views and preferences. Students acquire knowledge and skills to work in creative terms. The focus of the acquired properties is on the artistic side of the architectural design. Academic hours: Studio-120hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 0

### **Practical work or additional courses (ECTS MERIT)**

**ARCM082 Practice Work (In an Architectural Firm)** The practice takes place in the architectural office of a fully licensed architect. Students are acquainted with the scope of possible positions and careers eligible for the young architect. They learn about the construction's investment process stages and the role of the architect in them, juridical aspects of the career, project management, company organization and management, scientific research and educational activity, career abroad. Students acquire skills for team work and professional communications. Academic hours: Studio-30hrs; Duration: 15 weeks/1 semester; Continuous assessment; ECTS: 3

**ARCM383 Project: Pre-Graduation Project II - Architecture of Buildings and Complexes (concept design phase)** Students are encouraged to design building types that enable them to deal with ideas, interpreted in architectural forms with maximum freedom of views and preferences. Students acquire knowledge and skills to work in creative terms. The focus of the acquired properties is on the artistic side of the architectural design. Academic hours: Studio-60hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 6

**ARCM483 Project: Pre-Graduation Project II - Architecture of Buildings and Complexes (detailed design development phase)** Students have to develop a project they have previously designed in detailed working phase. They acquire knowledge and skills for working phase design of public buildings. The project covers the whole building or part thereof (limited by expansion joints) - depending on the size of the object. When developing the project all requirements and current legislation are taken into consideration. The project should only have minor modifications and deviations from the conceptual phase. Modifications may relate to the requirements of the construction or the regulatory framework, as well as improvements of functional or architectural and aesthetic character. Academic hours: Studio-60hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 6  
Total 420 academic hours/ 30 ECTS

## **Year VI, Semester XII**

### **Compulsory courses - Lectures/ Auditorium lecture and Practice courses (ECTS MERIT)**

### **ARCM096 Architecture of Buildings and Complexes, Graduate Thesis Work**

The final thesis is submitted in digital form and in bound paper - album (A3). The main results of the thesis are presented in minimum 6 boards (A0 format), reflecting correctly and in sequence clear objectives, the main stages and results of the study. Specific requirements are: clear and original concept for development of the area of interest; well grounded feasibility of the concept; theoretical and applied development - logical and consistent presentation of clearly defined research problem, hypothesis and model of the study; well-founded independent conclusions; presence ideas for application of the results.

Academic hours: Lectures-150hrs; Duration: 15 weeks/ 1 semester; Form of assessment: Project presentation; ECTS: 15

## **Term papers, independent study and master's thesis**

### **State Examination in Sketching and Architectural Design**

This is a state exam where students are under strict supervision while they are designing a small building. After the topic of the exam is randomly selected, students are given eight hours to complete a full set of drawings. The concept, originality and functionality of the design, respect of the current legislation, drafting techniques and sketching are evaluated. Students have to draw: site plan; all floor plans; four facades; two sections; sketches - to defend and present their design.

ECTS: 3

### **Graduation project**

The final graduation project is presented in public before a State Board of Examiners. The general requirements for presentation include demonstration of good knowledge on the contemporary urban trends, logical structuring and a convincing justification of the solution offered. The specific requirements are: (a) in case of practical/applied development – clear and original concept for development of the territory considered; well-grounded opportunities for concept realisation; (b) in case of theoretical/applied development – logical and consequent presentation of clearly defined research task, hypothesis and model of study; well-grounded independent implications; ideas for application of outcomes.

ECTS: 6

### **Defense of graduation project**

The graduation project is presented in public before a State Board of Examiners.

ECTS: 6

Total 150 academic hours/ 30 ECTS