

# Faculty of Architecture

## IMPORTANT NOTES

If for one subject you can find several different types (lecture, practice, laboratory) of courses then please choose one and only one course from each type in order to be able to perform the subject's requirements successfully. Civil Engineering courses are on the website separately. Courses chosen from the offer of Faculty of Civil Engineering will be checked and arranged individually by the departmental coordinator.

Subject code	Subject name			Requirement	ECTS credit
BMEEPAG0236	Applied Building Information Modelling B (Archicad advanced)			Mid-semester mark	3
Course type	Course code	Course language	Timetable information		
Laboratory	EN2-ER	English	WED:18:15-20:00(K217)		
Laboratory	EN1-ER	English	WED:18:15-20:00(K216)		
This course aims to expand the existing CAD knowledge of students to be able to create and modify complex CAD models easily. During the course, we use Archicad, so a basic knowledge of the program is expected.					
Subject code	Subject name			Requirement	ECTS credit
BMEEPAG0246	Applied Building Information Modelling A (Revit Architecture)			Mid-semester mark	3
Course type	Course code	Course language	Timetable information		
Laboratory	EN2-ER	English	THU:18:15-20:00(K216)		
Design and documentation with Revit Architecture - Introductory course. Design and basic CAD knowledge is recommended. (Architectural informatics 2)					
Subject code	Subject name			Requirement	ECTS credit
BMEEPAG0249	Constructive CAAD CE			Mid-semester mark	3
Course type	Course code	Course language	Timetable information		
Laboratory	EN1-ER	English	TUE:12:15-14:00(K218)		
Advanced CAD modelling course for students who are familiar with AutoCAD. The course deals with modeling concepts and techniques, texture, lighting and rendering. In the second part of the semester students work more or less autonomously (with occasional one-on-one consultations) on a model of their choice. See: <a href="http://www.epab.bme.hu/en/?ccce/">http://www.epab.bme.hu/en/?ccce/</a>					
Subject code	Subject name			Requirement	ECTS credit
BMEEPEG0995	Architectural Research for Exchange Students - EG			Mid-semester mark	6
Course type	Course code	Course language	Timetable information		
Practice	EN1-ER	English			
Architectural Research for Exchange Students on the topics of the Department's competency. The aim of the subject is to carry out a research on a special topic. The research contains specifying and processing the related international literature, summing up the findings in a study and finally a presentation. The language of the research depends on the consultant - the available topics are listed on the department's homepage.					
Subject code	Subject name			Requirement	ECTS credit
BMEEPEGA301	Building physics			Mid-semester mark	2
Course type	Course code	Course language	Timetable information		
Lecture	EN0-ER	English	WED:10:15-12:00(K230)		
One dimensional steady state heat transfer of composite slabs Thermal condition for a room, balance temperature of a nonheated space, energy conservation approaches. Conduction: Fourier's equation, Concept of thermal conductivity, Range of thermal conductance of building materials, One-dimensional steady state conduction through a plane slab. Convection. Steady state heat transfer of composite slabs, overall heat transfer coefficient, temperature gradient. Modified conduction of insulations. Air gaps. Reverse tasks: Maximizing inner temperature different. fulfilling new U-value requirement for existing wall. Examples. Linear heat transmission Introduction to Thermal Bridges, Definition of Self-Scale Temperature, two applications of SST, Definition of Apparent Thickness, Generalized model of wall corner, generalized model of wall corner temperature, Example: estimation of wall corner temperature. Moisture transfer Definition of Moist air, Dalton's Law, Moisture content, Saturation vapour pressure, Relative humidity, dew point, dry and wet bulb temperatures, Specific Enthalpy, Moisture balance, Mechanism of vapour transfer, Scope of calculation,					

Vapour conductivity and resistance, Overall vapour resistance of multilayer wall, Overall vapour transfer, Design consideration, example. Introduction to Solar Architecture Indirect Solar collecting walls. Mass walls: principles, surface, shading, energetic operation, delaying, losses, operation in summer, irradiated solar energy, examples, simplified thermal model. Example: calculation of thermal balance of a mass wall Solar Design Strategies Sustainable future (global impact of buildings, energy crises, the 2030 challenge, sustainable future). Energy Conscious Design (historical overview - traditional and modern architecture, international style, energy conscious architecture and refurbishment). Energy Conscious Refurbishment. Building Energy Standards (building energy regulation, certifications, standards). Energy Consumption of Buildings (Low and Passive and "zero" energy buildings). Autonom buildings. Energy Conscious Architecture, Passive Solar Systems (smart conceptual design, building volumes, thermal mass, mass wall, Trombe wall, transparent insulation, sun space, green roofs). Active Solar Systems (pv-panesl, solar collectors, heat pump, wind turbine)

Subject code	Subject name		Requirement	ECTS credit
BMEEPEGA501	Building Service Engineering 1		Mid-semester mark	2
Course type	Course code	Course language	Timetable information	
Lecture	EN0-ER	English	WED:14:15-16:00(K350)	

#### Water supply

The physical and chemical properties of water. Obtaining of water from the nature. Mechanical, chemical and biological treatment of water. Water treatment process of swimming pools. Transport of water. Characteristics of water pumps. Fresh water demand and production, hydrofords and hydroglobes. Cold water distribution network in a building. Metering of water consumption. Pipe materials and appliances: valves and taps, safety equipments. Fire protection networks. Domestic hot water demand and production. Domestic hot water networks in a building. Boiler types. Circulation. Appliances: toilets, baths, showers, washing machines, etc. Legionella.

#### Waste water systems

Requirements of waste water networks. Traps and syphons. Sanitary rooms for disabled people. Waste water networks. Rain water networks. Pipe materials and fittings.

#### Gas supply

Physical properties of natural and PB gas. Dangers of gas supply. Safety requirements. Gas supply networks outside and inside the building. Gas meters. Materials and fittings of gas networks. Gas appliances: boilers, stoves, ovens. Categorisation and safety requirements of appliances. Chimneys: types and requirements. Parameters of drought. Drought diverter.

#### Artificial lighting

Visual environment and its components. Characteristics of the human vision. Essential ideas of lighting technique: luminous flux, luminous intensity, illuminance, luminance. Characterisation of surfaces: reflection and transmission, spreading of light, colour. Requirements concerning the lighting. Average illuminance and its uniformity. Colour rendering. Modelling & shadows effect. Limitation of glare. Colour appearance. Balanced ratio of luminance. Cost efficiency. Artificial light-sources. Incandescent lamps. Fluorescent tubes. Compact tubes. HID lamps: mercury lamps, metal halide lamps and sodium lamps. Meeting of requirements. Efficiency-method. Proposed setting of luminaries. Electric network of buildings Parts of the network. Characteristics of the network: form, nominal voltage. Typical installations: lighting, building services and technology. Connection of building to public network. Transformers and its placing. Required areas of switchboards and transformers. Indirect contact.

Subject code	Subject name		Requirement	ECTS credit
BMEEPEK0995	Architectural Research for Exchange Students - EK		Mid-semester mark	6
Course type	Course code	Course language	Timetable information	
Practice	00	English		

Architectural Research for Exchange Students on the topics of construction technology and management. The aim of the subject is to carry out a research on a special topic. The research contains specifying and processing the related international literature, summing up the findings in a study and finally a presentation. The language of the research depends on the consultant - the available topics are listed on the department's homepage.

Subject code	Subject name		Requirement	ECTS credit
BMEEPEKA501	CM1 - Basics of Construction		Mid-semester mark	2
Course type	Course code	Course language	Timetable information	
Lecture	EN0-ER	English	TUE:10:15-12:00(K221)	

The goal of the subject is to present basic information on the technologies and organization of construction work, with special respect on construction activities of sub and superstructures. Considering the character of the subject both theoretical and practical knowledge is essential, therefore besides the lectures the site visits play emphasized role as well. Main topics: The construction process. Phases and participants of the construction process (roles, responsibilities, connections, etc.). Technical preparation and controlling of the construction. Handover – take-over of the building (reviewing the constructions – quality and quantity – and the plans) Introduction to construction technologies, conditions, requirements. Aspects of selecting the technology. Sequence of construction works (the follow-up of processes). Main equipment of construction (earthwork, foundation work, construction of loadbearing structures, etc.) Material supply on site – to the site. Informations about the construction site. Construction site

planning. Time scheduling. Types, relations. List of operations, survey for quantities, labour schedule, plant schedule, material schedule.

Subject code	Subject name		Requirement	ECTS credit
BMEEPEKAT41	Construction Management		Mid-semester mark	3
Course type	Course code	Course language	Timetable information	
Lecture	EN0	English	TUE:12:15-14:00(K144); TUE:12:15-14:00(K144)	
Practice	EN1	English	WED:08:15-10:00(K375)	

Curricula, themes, individual projects, tests, subjects of lectures and seminars of the Course are embracing managerial and organizational learnings useful and necessary for all civil engineers, such as: - jobs and organizational structure of Contracting Construction Trade; - jobs and relations of parties collaborating in executing construction projects; - time and resource needs of executing construction projects (basic methods and terms of time -, resource- and cost estimates); - basics of mechanizing Construction, construction equipments and auxiliary plants, typical applications; - organizing construction site (site layout designs). Individual project: Organizational plans (time estimates, resources calculations and site layout designs) of building a simple linear structure (reinforced concrete retaining wall) well known in practice of all civil engineers.

Subject code	Subject name		Requirement	ECTS credit
BMEEPEKK601	CM2 - Building Project Management		Exam	4
Course type	Course code	Course language	Timetable information	
Lecture	EN0-ER	English	WED:10:15-12:00(K350)	
Practice	EN1-ER	English	WED:12:15-14:00(K350)	

The subject introduces the investment process from emerging the idea through tendering until the hand-over and use. It shows the role and tasks of an architect in different phases of a construction process. It gives an introduction of real estate investment, basics of project management. The relationship between costs, time and quality: scheduling, planning and estimating and the procurement methods are revealed. There are case studies in the field of construction projects, their preparation and performance, planning, organising leading and commanding of works. Main topics: Building project management Participants of the construction Start-up of the construction project - architectural competition Tendering and contracting Scheduling, networks Cost estimation Post occupancy evaluation

Subject code	Subject name		Requirement	ECTS credit
BMEEPEKMB51	Decision Support Methods		Mid-semester mark	2
Course type	Course code	Course language	Timetable information	
Lecture	EN0	English	MON:12:15-14:00(K375); MON:12:15-14:00(K375)	

Subject code	Subject name		Requirement	ECTS credit
BMEEPEKMST4	Decision Support Methods		Mid-semester mark	2
Course type	Course code	Course language	Timetable information	
Lecture	EN0	English	TUE:08:15-10:00(K374); TUE:08:15-10:00(K374)	

Via some special modelling problems also to be elaborated by students the aim of subject is to introduce some basic skills and knowledge on applied mathematics for to support decisions when planning, controlling and monitoring construction projects.

Subject code	Subject name		Requirement	ECTS credit
BMEEPEKQ903	Special Construction Technology		Mid-semester mark	3
Course type	Course code	Course language	Timetable information	
Lecture	EN0-ER	English	TUE:13:15-15:00(K221)	
Practice	EN1-ER	English	TUE:15:15-16:00(K221)	

Subject code	Subject name		Requirement	ECTS credit
BMEEPESA101	Introduction to Building Constructions		Mid-semester mark	2
Course type	Course code	Course language	Timetable information	
Lecture	EN0-ER	English	WED:08:15-10:00(K363)	
Practice	EN1-ER	English	WED:08:15-10:00(K363)	

This subject introduces all major building construction components (walls, foundations, floors, roofs, skeleton frames, stairs, ramps, doors and windows) and primary building engineering service systems. During lectures, the building is considered as a composition of spaces with different functions, separated by special surfaces. The course aims to introduce and explain the grammar of architectural design through practical tasks, such as the survey of one's own flat. Concurrently, the basic dependant factors of the creative design process are described. Students are acquainted with technical terminology as well as the role and use of various construction solutions

including their classifications. The above shall assist students with both starting independent design exercise work and the continuing of building construction studies in greater detail.

Subject code	Subject name		Requirement	ECTS credit
BMEEPESA301	Building Constructions 2		Exam	4
Course type	Course code	Course language	Timetable information	
Lecture	EN0-ER	English	THU:08:15-10:00(K344)	
Practice	EN1-ER	English	FRI:08:15-10:00(K351)	

The subject deals mainly with pitched roof constructions, roof coverings and different types of foundations – the latter with consideration to waterproofing solutions. During seminar lectures the principles and details of shallow and deep foundations are introduced, according to functional and load bearing requirements of various building constructions as well as subsurface water and soil type effects. Also introduced are the functions and primary principles of different pitched roof constructions such as: traditional roof, rafter type (modern) roof, purlin and truss type roof as well as contemporary methods of carpentry. Further explanation is provided on occupied (built-in) attic constructions with focus on principles, layers, ventilation, windows and lighting. The main types of roof coverings are shown, such as concrete and clay tiles, flashings and metal roof coverings with special attention to principles and details.

Subject code	Subject name		Requirement	ECTS credit
BMEEPESA501	Building Construction 4		Exam	4
Course type	Course code	Course language	Timetable information	
Lecture	EN0-ER	English	MON:08:15-10:00(K344)	
Practice	EN1-ER	English	WED:12:15-14:00(K353)	

Flat roofs. Classification, general design aspects, basic construction principles (inclination and geometry of the water collecting areas) according to the impacts on the roofs. Arrangement of roofing layers. Requirements concerning to the different constructions, layers, materials, building physics. Waterproofing (membranes, coatings), applied materials and their features. Technologies and details. Tracking type and terrace roofs, green roofs. Flooring. Effects and requirements. Layers, subsystems, acoustical evaluation. Substructures of floor coverings and their technical features. Classification according to the materials, specifications. Waterproofing against domestic and industrial wet effects. Drywalls, suspended ceilings, internal wall coverings. Labelling systems, design aspects, effects, requirements, basic structural principles. Internal separating structures of residential buildings satisfying acoustical requirements, connecting details of slabs, floorings and stairs. Principles of primary building engineering service systems and building constructions of sanitary block.

Subject code	Subject name		Requirement	ECTS credit
BMEEPET0407	History of Theory of Architecture 1		Exam	2
Course type	Course code	Course language	Timetable information	
Lecture	EN1-ER	English	THU:13:15-15:00(K221)	

The subject History of Theory of Architecture I. follows the structure of preliminary architectural history courses focusing on the determinant theories of architecture of different periods. The exploration of the most important tendencies and notions of theory of architecture is based on the preliminary history of architecture studies in an essentially chronological structure, evaluating them in critical analysis and searching their role in the history of ideas. Lecture topics include: Categories and concepts of theory in the history of architecture from antiquity to the raise of modernism in the beginning of the 20th century. Vitruvius and his interpretations. Architectural theory in the Middle Ages from early Christianity to late Gothic period. Humanism and the revival of antique architecture in the 15th. The column orders and commentaries on Vitruvius; the theory of the ideal city. Baroque in the reform of the catholic church. Academic movement in France and Classicism in Italy in the 17th. Theory of architecture in France in the 18th century. Enlightenment and revolutionary architecture. 19th century theories in England, France and Germany; the interpretation of medieval and classical heritage. The dilemma of eclecticism. Pioneers of modernism and their manifests. The pluralism in the interpretation of architectural space; architecture and philosophy.

Subject code	Subject name		Requirement	ECTS credit
BMEEPET0995	Architectural Research for Exchange Students - ET		Mid-semester mark	6
Course type	Course code	Course language	Timetable information	
Practice	EN1-ER	English		

Similarly to the international practice, the course aims research activity in architecture and its documentation primarily. The research topics' possible horizon is determined by the course lists of the departments and the students' interest. Besides the architectural topics, the course will appreciate interdisciplinary and special fields in the international environment. The project work will demonstrate generic and specific skills and understanding of the research's open and synthetic character. The objective of this course is to hone the skills of analysis and abstraction in order to develop a framework for research. The student should be able to draw from precedent in the art, architecture, and engineering in the development of this framework, which will act as scaffolding for the theoretical,

experimental, and creative decisions. This course will consist of a series of consultations with the teachers, but the essay should write by the student. The available topics are given by the Departments of the Faculty. The student can also propose a special topic for research during the course, but the teacher must be agreeing with the proposal. The available topics are listed on the department's homepage: <http://www.eptort.bme.hu/>

Subject code	Subject name	Requirement	ECTS credit
BMEEPETA101	The Beginning of Architecture, Vernacular Architecture	Exam	3
Course type	Course code	Course language	Timetable information
Lecture	EN0-ER	English	TUE:10:15-12:00(K397)
Practice	EN1-ER	English	TUE:12:15-13:00(K397)

The course gives an overview of the architecture in the first period of the evolution of human culture. The classes follow chronology – mainly in the first part of the course – with focusing on the development of building constructions and the development of settlements. Prehistory: Palaeolithic human claim to space, from the cave to the hut. Building activity of Neolithic peasants, one-celled houses and fortified settlements. Introduction to building construction in the Near East and Europe. In the second part the course gives an overview of the vernacular architecture of the world. Native architecture: comparative outline of the architecture of hunting, pastoral and farming peoples. Construction, building materials and decorations. Native American, African and European architecture. The practical lessons show details were delivered in the lecture before. The drawings drawn by students help them to understand the colourful world of common and rural architecture.

Subject code	Subject name	Requirement	ECTS credit
BMEEPETA301	History of Architecture 3 (Medieval)	Exam	3
Course type	Course code	Course language	Timetable information
Lecture	EN0-ER	English	TUE:10:15-12:00(K392)
Practice	EN1-ER	English	TUE:12:15-13:00(K392)

The architecture of the Late Roman Empire. The born of Christianity and its „Necessity architecture“. The born of the monumental Christian architecture – Early Christian architecture in Rome. – Early Christian architecture in the eastern Provinces: Palestine, North Africa, Syria – Late Roman and Oriental traditions. Early Byzantine architecture in Thessalonica and in Constantinople. Load bearing structures of the Early Christian period. Different types of barrel vaults, Roman-type cross vault. – Syrian influences in Armenia. The „Iconoclasm“ and the aftermath in Greece. Architecture in the radius of influence of Byzantium. The comparison of the basilicas in Rome and in Syria. – Ravenna. The penetration of Christian architecture into barbarian Europe – „Scattered monuments“. Byzantine vaulting systems. The main stream of the Romanesque architecture: the Carolingian architecture with the „evangelizer“ Benedictine movements, the three periods of the German-Roman Empire. The Langobard architecture in North-Italy. The Romanesque vaulting systems: Romanesque cross vault, Sexpartite vaulting, „groin-rib“ vaulting. Squire-bayed and free vaulting systems – the pointed arch. Basilica and „false basilica“ type space organization. – The retrospective interregional influences in Romanesque architecture. – Antique influences. Byzantine influences. The progressive interregional influences in Romanesque architecture – monastic movements: Benedictine and Cistercian, Norman „Imperial“ Romanesque architecture. Morphology of medieval detailing. The Early French Gothic cathedrals. – The flourishing period of the French cathedrals, and its influences in South-France, in England, in Germany and in Italy. Interregional influences in gothic architecture: Cistercian gothic formations, the Franciscan and Dominican movements. – The special characteristics of English and German gothic architecture. Late gothic vaulting systems: Cylindrical (or net vaults) and Spherical (or stellar) vaults. Halls and false-halls – Civic movements in Late Gothic in Germany and the proto-renaissance in Italy. Medieval secular architecture.

Subject code	Subject name	Requirement	ECTS credit
BMEEPETA501	History of Architecture 5 (19th century)	Mid-semester mark	3
Course type	Course code	Course language	Timetable information
Lecture	EN0-ER	English	FRI:10:15-12:00(K211)
Practice	EN1-ER	English	FRI:12:15-13:00(K211)

The period of this History of Architecture subject is the “long nineteenth century” from the 1750s to the 1910s. In this era the architecture and the art turned to the past, to the previous styles using them in a new approach. The architects had discovered the history of art and artistic liberty at the same time. At the turn of the 20th century the art and also the architecture searched for new ways instead of using historical architectural elements or motifs. The changes led to the Modern Movement when buildings were being erected without decoration or ornaments in the first quarter of the 20th century. This period was divided into different eras, but these types of periodization were different in different countries and changed in the course of the 20th century. Beside the question of styles 19th century is important not only because of the appearing of new structures and materials in the architecture but because of the great development in the field of the functional planning. While following the timeline, the classes concentrate on the development of the styles in several areas of Europe (Great Britain, France, Germany, Russia) looking out to the United States of America too, because there the styles reflected the European ones.

Subject code	Subject name			Requirement	ECTS credit
BMEEPETO921	Theory of Achitectural Design			Exam	2
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>		
Lecture	EN0-ER	English	WED:10:15-12:00(K285)		
<p>The course aims at awakening and strengthening the students' abilities, interest, to reflect on architectural design, in accordance with their own cultural background, in the original spirit of theorizing: thinking of, looking at, with freedom and criticism. Considering the special and unique position of this continuous reflective activity as an operative and constitutive part of the architectural design practice, the course not only picks up special themes of history and contemporary discourses, but also concentrates on mobilizing the students practical and theoretical skills, already acquired during their previous studies.</p>					
Subject code	Subject name			Requirement	ECTS credit
BMEEPETQ703	History of Hungarian Architecture			Mid-semester mark	3
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>		
Lecture	EN0-ER	English	MON:17:15-19:00(K285)		
<p>The course gives an overview on history and theory of the architectural preservation in Europe and Hungary. Presents the evaluation of the way of thinking from purism to the modern practice of restoration. It is an important part, when national and international documents and theoretic papers are discussed, form Morris and Ruskin's work, over Boito's "Prima carta del restauro" (1883) to Krakow Charter 2000. Following the historic part some technical aspects of preservation are discussed, i.e. surveying methods and techniques, non-destructive and destructive building archaeological methods etc. The brief introduction to building archaeology helps to understand the importance of theoretic reconstruction of independent building phases of the historic monument. The detailed discussion of the topic is part of the Preservation of historic buildings 2 – Building archaeology elective subject. The third part is dealing with architectural and design-methodological questions of preservation. Especially the architectural problems of presentation of archaeological heritage, the reuse and functional problems of industrial and vernacular buildings for modern purposes.</p>					
Subject code	Subject name			Requirement	ECTS credit
BMEEPETT611	Preservation of Historic Monuments			Mid-semester mark	2
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>		
Lecture	EN0-ER	English	TUE:16:15-18:00(K275)		
<p>Similar to the international practice aims the course primary research activity on architecture and its documentation. The possible horizon of the research topics is determined by the course lists of the departments and the personal interest of the students. Beside the architectural topics will give the course an appreciation of interdisciplinary and special fields in international environment too. The project work demonstrating generic and specific skills and understanding of the open and synthetic character of the research. The objective of this course is to hone the skills of analysis and abstraction in order to develop a framework for research. The student should be able to draw from precedent in both art, architecture and engineering in the development of this framework, which will act as scaffolding for the theoretical, experimental and creative decisions. This course will consist of a series of consultations to the teachers, but the essay should be written by the student. The available topics are given by the Departments of the Faculty. The student can propose also a special topic for research during the course, but the teacher has to be agree with the proposal.</p>					
Subject code	Subject name			Requirement	ECTS credit
BMEEPIP0995	Architectural Research for Exchange Students - IP			Mid-semester mark	6
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>		
Practice	EN1-ER	English			
<p>Similar to the international practice aims the course primary research activity on architecture and its documentation. The possible horizon of the research topics is determined by the course lists of the departments and the personal interest of the students. Beside the architectural topics will give the course an appreciation of interdisciplinary and special fields in international environment too. The project work demonstrating generic and specific skills and understanding of the open and synthetic character of the research. The objective of this course is to hone the skills</p>					
Subject code	Subject name			Requirement	ECTS credit
BMEEPKO0995	Architectural Research for Exchange Students - KO			Mid-semester mark	6
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>		
Practice	EN1-ER	English			

of analysis and abstraction in order to develop a framework for research. The student should be able to draw from precedent in both art, architecture and engineering in the development of this framework, which will act as scaffolding for the theoretical, experimental and creative decisions. This course will consist of a series of consultations to the teachers, but the essay should be written by the student. The available topics are given by the Departments of the Faculty. The student can propose also a special topic for research during the course, but the teacher has to agree with the proposal.

Subject code	Subject name		Requirement	ECTS credit
BMEEPKOA301	Public Building Design 1		Exam	2
Course type	Course code	Course language	Timetable information	
Lecture	EN-KO-0	English	FRI:10:15-12:00(K221)	

Our basis for design principles are the functions of public buildings and technical requirements, exploring by analysis of architectural history and references. During the course will be analysed important examples of Hungarian and International public buildings concerning architectural space, architectural form, use of materials and structures, in relationship to various environmental factors. Lectures introduce all major types of public buildings from points of view of the consumers and contributors. The course lays on the practice of design in the second semester, the Public Building Design 2.

Subject code	Subject name		Requirement	ECTS credit
BMEEPRA0995	Architectural Research for Exchange Students - RA		Mid-semester mark	6
Course type	Course code	Course language	Timetable information	
Practice	EN1-ER	English		

University of Universities Students joining the Department of Graphics, Form & Design will have the opportunity to participate at the University of Universities. UoU (<https://uou.ua.es>) is an international / interacademic course with the contribution and close collaboration of 40 faculties of architecture and arts around Europe, of which our department has been an active member since its first edition three years ago. Instead of a single specific research program, our students will have the opportunity to join six (2-week long) compact project or research-based creative & scientific workshops, over the course of the semester. Each of the 6 sessions offer a selection of 3 to 5 online workshops, covering various fields of Architecture & Arts, among which students have complete freedom to choose, according to their interest and preference. We will also offer students developing the results of one or more of their workshops into a scientific paper the opportunity to publish at the open access UoU Scientific Journal (indexed at DOAJ / SHERPA / RoMEO / Dialnet / Norwegian Register for Scientific Journals). For more information, please visit the following link: <http://www.rajzi.bme.hu/en/research/research-themes/630-university-of-universities>

Subject code	Subject name		Requirement	ECTS credit
BMEEPRAA305	Form and Composition 1.		Mid-semester mark	3
Course type	Course code	Course language	Timetable information	
Practice	EN1-ER	English	WED:15:15-18:00(K3R5)	

Form and Composition 1 is the first course in the academic unit extending over four semesters, titled 'Studio of Architectonic Thinking' The course aims to provide students with guidance:

- from the aspect of forms: to the exploration of the interconnections among perpendicular and nonperpendicular, planar and spatial compositions based on the line (either straight or curved) as fundamental structural and geometrical component, and to the creation of such compositions in plane and space.
- from the aspect of composition: to grasp the possibilities, fundamental concepts and operations of linear compositions in plane and space;
- from the aspect of colour theory: to understand grayscale and coloured monochromaticity, the different monochromatic colour scales of the colour plane, and the context and aesthetic content of colours and the various colour systems;
- from a technical aspect: to the basic steps of preparing hand-drawn linear, structured drawings, colour paintings as well as manual collages, scale models, digital images and 3D models;
- and from the aspect of visual communication: the various potentials and essential functions of graphics, image manipulation, and the basic techniques of digital collage, photo montage, typography and infographics.

Projects of the semester include instructor-assisted and supervised individual and group works.

Subject code	Subject name		Requirement	ECTS credit
BMEEPRAA505	Form and Composition 3.		Mid-semester mark	3
Course type	Course code	Course language	Timetable information	
Practice	EN1-ER	English	TUE:15:15-18:00(K3R4)	

Form and Composition 3 is the third course in the academic unit extending over four semesters, titled

'Studio of Architectonic Thinking'. The course aims to provide students with guidance:

- from the aspect of forms: to the potential principles of architectonic shaping, form-finding and form research based on the mass (spatial form, shape) as fundamental structural and geometrical component in perpendicular, non-perpendicular and curved configurations;
- from the aspect of composition: to grasp the possibilities, fundamental concepts and operations of volumetric compositions; the compositional principles of surface partitioning of volumetric forms and the visual compositional guidelines of orthogonal imagery;
- from the aspect of colour theory: to the application of colours in their most commonly used saturation, triad and quadriad colour harmonies, the aesthetics of realistic visualization (surface textures & factures) and its application possibilities in digital collage
- from a technical aspect: to digital or hybrid graphical techniques, and a more advanced level of creating quality manual or digital scale models.
- and from the aspect of visual communication: to an advanced use of raster graphics and realistic visualization or (matching to scale) abstraction of the characteristics of light and materials.

Projects of the semester include instructor-assisted and supervised individual and small-group works.

Subject code	Subject name	Requirement	ECTS credit
BMEEPRAOs80001-00	Colour Dynamics	Mid-semester mark	2

Course type	Course code	Course language	Timetable information
EA	EN1-ER	English	TUE:10:15-12:00(K3R5)

Subject code	Subject name	Requirement	ECTS credit
BMEEPST0151	Basics of Structural Design	Mid-semester mark	2

Course type	Course code	Course language	Timetable information
Practice	EN1	English	WED:14:15-16:00(K353)

The subject is suggested for student on MSc course to refresh the structural studies of the different BSc courses. The typical structural problems are presented: beams, slabs, columns, walls, trusses and bracings. All the typical structural materials are presented too: reinforced concrete, steel, timber and brick. The structural analysis is on the focus: loads, the hierarchy of structural elements, equilibrium, internal forces, stresses. The resistance of the structural elements is the other topic: elastic and plastic resistance, buckling resistance. The Eurocode is the base of the resistance calculations, but the subject tries to be "code free", the knowledge can be used all over the world. After all the students pass this subject can be ready for the advanced courses of our MSc: Special Loadbearing Structures, Comprehensive Design and Diploma Design.

Subject code	Subject name	Requirement	ECTS credit
BMEEPST0655	Design of Reinforced Concrete Structures	Mid-semester mark	2

Course type	Course code	Course language	Timetable information
Lecture	EN0	English	WED:14:15-16:00(K221)

The subject introduces students into the way of design of approximate dimensions, joints and structural solutions of reinforced concrete structures. Invited lecturers expose some of the most significant recent investments in reinforced concrete in Hungary. The aim of the course is to develop the ability of students - on the basis of EUROCODE 2 - to adopt architectural dimensions and to evaluate the effect of the chosen architectural lay-out onto the structural solution.

Subject code	Subject name	Requirement	ECTS credit
BMEEPST0995	Architectural Research for Exchange Students - ST	Mid-semester mark	6

Course type	Course code	Course language	Timetable information
Practice	EN1-ER	English	

Architectural Research for Exchange Students on the topics of the Department's competency. The aim of the subject is to carry out a research on a special topic. The research contains specifying and processing the related international literature, summing up the findings in a study and finally a presentation. The language of the research depends on the consultant - the available topics are listed on the department's homepage.

Subject code	Subject name	Requirement	ECTS credit
BMEEPSTA105	Statics	Exam	4

Course type	Course code	Course language	Timetable information
Lecture	EN0	English	TUE:08:15-10:00(K221)
Practice	EN1	English	FRI:10:15-12:00(K364)

Statics is a compulsory first-year BSc level course of the architectural engineering curriculum, which aims to promote



basic engineering skills. We focus on the theory of statics, as well as the basic steps of structural analysis and modeling. Basic concepts of mechanics are introduced (force, distributed force, moment, resultant, equilibrium). The basic elements of structural models are presented. Statically determinate structures in two dimensions, including beams, columns, frames, trusses, and complex structures are analyzed. Reactions, internal force diagrams and their extremal values are calculated. Applications to building structures are demonstrated.

Subject code	Subject name		Requirement	ECTS credit
BMEEPSTA305	Strength of Materials 2		Mid-semester mark	5
Course type	Course code	Course language	Timetable information	
Lecture	EN0-ER	English	TUE:13:15-16:00(K364)	
Practice	EN1-ER	English	THU:14:15-16:00(K364)	

Strength of Materials 2 is a compulsory engineering core subject. The goal of the course is to determine the displacements of statically determinate load-bearing structures and the internal forces of statically indeterminate frame structures and bracing systems based on elastic and plastic design principles. The purpose of the course is to explain the theoretical relationships related to the mechanics of frame structures and to give the basis for the design decisions to be made in the conceptual design phase. The theoretical basis is presented through examples of architectural practice. Another goal is to develop appropriate skills in solving tasks of load-bearing structures.

Subject code	Subject name		Requirement	ECTS credit
BMEEPSTA501	Design of Load-Bearing Structures		Exam	6
Course type	Course code	Course language	Timetable information	
Lecture	EN0-ER	English	WED:10:15-12:00(K351)	
Practice	EN1-ER	English	FRI:08:15-10:00(K352)	

Basic conceptual and computational design methods of load-bearing structures are discussed for reinforced concrete-, steel-, timber and masonry buildings. The main goal is to gain knowledge about structural design problems and principles of structural design in order to understand how and why the load-bearing structure influences the work of an architect.

Subject code	Subject name		Requirement	ECTS credit
BMEEPSTA505	Design of Loadbearing Structures 2		Mid-semester mark	4
Course type	Course code	Course language	Timetable information	
Lecture	EN0-ER	English	WED:10:15-12:00(K351)	
Practice	EN1-ER	English	FRI:08:15-10:00(K352)	

The aim of the course is to become familiar with the important construction and calculation methods of structural design. The main themes of the course include design of the bracing system, effect of earthquake, 2D surface structures (plate, wall structures), usage of the finite element method for 2D elements; construction and design of reinforced concrete structures and load-bearing masonry structures, like slabs, reinforced concrete frames and masonry walls both in ultimate limit state and serviceability limit state. The course prepares students for the construction of reinforced concrete and masonry buildings, that is related to architectural needs. Besides getting to know the structural systems, the subject also deals with the dimensioning of structural elements and provides an opportunity to learn modern computer calculation methods.

Subject code	Subject name		Requirement	ECTS credit
BMEEPTCEP01	Interdisciplinary, Project based Design F		Mid-semester mark	16
Course type	Course code	Course language	Timetable information	
Practice	EN1-ER	English	MON:08:15-16:00(K222); WED:08:15-16:00(K222)	
Practice	EN2-ER	English	TUE:08:15-16:00(K222); THU:08:15-16:00(K222)	

The course is based on a cooperation of a design and a technical department. In each semester we try to attain and correspond to architectural quality while designing considering one selected technical aspect. The course will be held in a workshop style. Students' work will be accompanied by consultants of both departments. Students will have to complete their tasks in groups. The development/progress of their projects will be presented by the students in form of open presentations during the seminars. These presentations will be immediately evaluated by the consultants who will discuss the work in public. The seminars not only provide space to collective consultations and presentations but also contain the consultant's phase-specific presentations which shall improve the development of the work.

Subject code	Subject name			Requirement	ECTS credit
BMEEPUI0893	Cities of the World			Mid-semester mark	2
Course type	Course code	Course language	Timetable information		
Lecture	EN1-ER	English	FRI:12:15-15:00(K393)		
Course on current challenges of global urbanization with special focus on small scale & network interventions in cities and suburban areas. Topics discussed: (1) how theoretical thinking on urban development is transformed in the context of global urbanization; (2) how deindustrialization is reflected in the changing urban development dynamics; (3) what are the impact of political and market forces on city development; (4) the impact of sustainability and resilience on urban planning; (5) possible ways to enhance the overall quality of urban life.					
Subject code	Subject name			Requirement	ECTS credit
BMEEPUI0995	Architectural Research for Exchange Students - UI			Mid-semester mark	6
Course type	Course code	Course language	Timetable information		
Practice	EN1-ER	English			
Architectural research for exchange and international students: with the professional leadership of the tutors of the Department of Urban Planning and Design students work on individual research topics (eg.. Urban History, Urban Typologies, Urban Morphologies, Housing estates etc.). The course is based on individual work, with a final output of an essay.					
Subject code	Subject name			Requirement	ECTS credit
BMEEPUIA501	Urban Design 1			Exam	2
Course type	Course code	Course language	Timetable information		
Lecture	EN0-ER	English	WED:08:15-10:00(K221)		
The subject is the theoretical course of the fifth semester. The goal is to introduce students to the theoretical background of Urban Planning and Design with specially focusing on the knowledge and skills necessary for the successful participation in the Design courses later on in the curriculum. The course deals with the historical background, fundamental theories, basic typologies, most wide spread urban forms and basic sustainability aspects of the urban environments worldwide.					
Subject code	Subject name			Requirement	ECTS credit
BMEEPUIQ701	Contemporary City: Urban Form and Space Usage			Exam	3
Course type	Course code	Course language	Timetable information		
Lecture	EN0-ER	English	FRI:12:15-16:00(K350)		
Practice	EN1-ER	English			
Understanding the contemporary development of the inherited urban landscape is not about what to do, but how to think about what to do. The seminar focuses on the closed/open duality of the urban fabric because this qualitative dimension characterizes not only the physical context but is also strongly related to the social. On one hand, the degree of closeness/openness is one of the most important characteristics of every historic, modern, and contemporary urban form, and on the other hand, these physical forms influence or define the space usage within the city.As international students have various cultural and educational backgrounds, the course uses the opportunity to learn from each other, to discover, and compare several urban case studies. The practical part facilitates this method by analyzing so-called "d��j�� vu" urban situations worldwide. The course introduces local and global components that shape the contemporary city and gives tools for further complex discovery related to urban design or research.					
Subject code	Subject name			Requirement	ECTS credit
BMEEPUIQ802	Hungarian cities: urban culture and planning			Mid-semester mark	3
Course type	Course code	Course language	Timetable information		
Lecture	EN0	English	THU:15:15-17:00(K397)		
Practice	EN1	English			
The aim of the course is to introduce students to the specific formation and development of the Hungarian settlement system through the different historical periods of urban growth. Each era will be presented through the historical and social background, as well as the settlement establishment and development factors, such as the town-forming role of the environment, nationalities, religions and social stratification; and the Soviet influence on town planning. Among other things specific environment-forming activities and morphological, townscape and floor plan characteristics typical of Hungary will be discussed. During the semester, several (invited) lecturers will give presentations on the different topics, enriching the course.Main topics: Geographical features of Hungary, Geography and Urban Space; Urban morphology;Modern recreational architecture on the Balaton Lakeside, Blocks of flats in Budapest, Urban architectural tendency during the State-socialism, Spatial patterns of urban tourism in Budapest; Local knowledge of settlementsOn Sept 22 2022: Urban walk					

Subject code	Subject name		Requirement	ECTS credit
BMEEPUIQ902	City and City		Exam	3
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>	
Lecture	EN0	English	WED:16:15-17:00(K211)	
Practice	EN1	English	WED:17:15-18:00(K211)	

The course looks at cities from the perspective of the users, the inhabitants, from a kind of internal point of view, trying to understand the nature of change and the role of local societies, how the same tool can have different effects and spatial imprints in different cities on different socio-economic grounds.

The subject examines the interaction between the physical environment and social and economic change in specific types of cities. It also attempts to capture the spirit and nature of cities by including the cultural context. In the seminar-like but interactive theoretical lessons, thematic summary analyses based on international literature are complemented by literary and film material that is representative of the cultural imprint of the cities under study. The main theme of the semester is PLACEMAKING, which will focus on a specific area of Budapest (Népszínház utca) together with several invited tutors.