

# 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	CAAD and Architects Informatics F			Mid-semester mark	3
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>		
Laboratory	EN1-ER	English	WED:18:15-20:00(K217)		
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	Constructive CAAD F			Mid-semester mark	3
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>		
Laboratory	EN1-ER	English	WED:16:15-18:00(K218)		
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
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>		
Laboratory	EN1-ER	English	THU:12:15-14:00(K216)		
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
BMEEPAGA501	Architectural Informatics 3 - CAD for Architects			Mid-semester mark	3
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>		
Laboratory	EN1-ER	English	THU:11:15-13:00(K217)		
Lecture	EN0-ER	English	THU:10:15-11:00(K217)		
Use of state-of-the-art CAAD software to develop professional architectural solutions. Extensive use of 3-D computer model development. Architectural documentation with computers. Computer animation and fly-through pictures for architectural space analysis.					
Subject code	Subject name			Requirement	ECTS credit
BMEEPEG0995	Architectural Research for Exchange Students - EG			Mid-semester mark	6
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>		
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
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>		
Lecture	EN0-ER	English	TUE:08:15-10:00(K221)		
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, hydrofors 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 ndash; 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	EN1-ER	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:12:15-14:00(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(K389); TUE:12:15-14:00(K389)	
Practice	EN1	English	WED:08:15-10:00(K389)	

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
BMEEPEKMST4	Decision Support Methods		Mid-semester mark	2
Course type	Course code	Course language	Timetable information	
Lecture	EN0	English	TUE:08:15-10:00(KM79); TUE:08:15-10:00(KM79)	

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
BMEEPEKS901	Special construction projects		Mid-semester mark	2
Course type	Course code	Course language	Timetable information	
Lecture	EN1-ER	English		

The course's aim is to give up-to-date information on different special fields of construction in three blocks. In the first block the construction technologies of special, sub- and superstructures are shown, involving topics like metro tunnels, metro stations, special slurry walls, special reinforced concrete superstructures and formwork systems. In the second block traditional and modern materials and technologies are presented regarding to eco- and green architecture, like construction technologies of the passive buildings, or green facades. In the third block students get information on the application of traditional construction technologies, restoration methods and the maintenance of monuments and historic buildings. Besides the theoretical lectures many site visits are organized to present the practical aspects of the subject as well.

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	THU:08:15-10:00(K285)	
Practice	EN1-ER	English	THU:08:15-10:00(K285)	

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
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>	
Lecture	EN0-ER	English	MON:08:15-10:00(K392)	
Practice	EN1-ER	English	FRI:08:15-10:00(K392)	
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		Mid-semester mark	4
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>	
Lecture	EN0-ER	English	WED:12:15-14:00(K345)	
Practice	EN1-ER	English	THU:08:15-10:00(K345)	
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
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>	
Lecture	EN1-ER	English	MON:15:15-17:00(K285)	
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
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>	
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: <a href="http://www.eptort.bme.hu/">http://www.eptort.bme.hu/</a>				
Subject code	Subject name		Requirement	ECTS credit
BMEEPETA101	The Beginning of Architecture, Vernacular Architecture		Exam	3
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>	
Lecture	EN0-ER	English	TUE:10:15-12:00(K285)	
Practice	EN1-ER	English	TUE:12:15-13:00(K285)	
<p>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.</p>				
Subject code	Subject name		Requirement	ECTS credit
BMEEPETA301	History of Architecture 3 (Medieval)		Exam	3
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>	
Lecture	EN0-ER	English	TUE:12:15-14:00(K392)	
Practice	EN1-ER	English	TUE:14:15-15:00(K392)	
<p>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.</p>				
Subject code	Subject name		Requirement	ECTS credit
BMEEPETA501	History of Architecture 5 (19th century)		Mid-semester mark	3
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>	
Lecture	EN0-ER	English	FRI:10:15-12:00(K221)	
Practice	EN1-ER	English	FRI:12:15-13:00(K221)	
<p>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.</p>				
Subject code	Subject name		Requirement	ECTS credit
BMEEPETM101	History of Contemporary Architecture M		Exam	3
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>	
Lecture	EN0-ER	English	THU:14:15-17:00(K350)	

The course gives an overview of the architecture in the 20-21st centuries. The classes follow chronology with focusing on the works of some great architects: Modernism and Modern Movement. Architecture between the two world wars – De Stijl, Bauhaus, Russian Constructivism, Less is more – Architecture of Ludwig Mies van der Rohe, Toward a New Architecture – Architecture of Le Corbusier. The Nordic Classicist Tradition – Architecture of E. G. Asplund and S. Lewerentz. Alvar Aalto and the modern Finnish architecture. In the second part the course picks up some relevant architectural trends: New Empiricism, New Humanism, New Brutalism and the Team X, the way from large housing estates to architecture without architects. Unfolding post-modern architecture, participation and the Las Vegas strip, Colin Rowe's studio, Critical Regionalism. The third part concentrates on timely problems: new materials or the multi-sensorial experience of space and surface, Rem Koolhaas's Dirty Realism, new technology and digital perception, architecture of seduction.

Subject code	Subject name	Requirement	ECTS credit
BMEEPETO901	History of Architecture in Hungary 2	Mid-semester mark	2

Course type	Course code	Course language	Timetable information
Lecture	EN0-ER	English	WED:12:15-14:00(K364)

The course gives an overview of Hungarian architecture from the end of the 18th century up to now. While following the timeline, the classes concentrate on the main problems of the investigated periods, like the question of historicism, international and national sources between the 2 Wars, socialist realism in the 1950s, technology and high-rise in the 1960s, built environment in the 1970s, post-modernism in the 1980s. As the problem of identity (national or regional architecture) is a recurrent theme through the whole period, the course pays a special attention to it.

Subject code	Subject name	Requirement	ECTS credit
BMEEPETO921	Theory of Design	Exam	2

Course type	Course code	Course language	Timetable information
Lecture	EN0-ER	English	WED:10:15-12:00(K285)

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.

Subject code	Subject name	Requirement	ECTS credit
BMEEPETT721	History of Art	Exam	2

Course type	Course code	Course language	Timetable information
Lecture	EN0-ER	English	TUE:10:15-12:00(K211)

Beginnings of the art: the pictures of the cavemen. ndash; Ancient art of the East: Egypt. ndash; Classical art of the Antiquity: Greek and Roman art. ndash; Early Christian and Medieval art. ndash; Renaissance and Baroque art. ndash; The art at the age of Enlightenment: Gothic revival, Classical revival, Classicism. ndash; Romanticism, Realism, Impressionism, Postimpressionism. Bibliography: Ernst H. Gombrich: The Story of Art, Phaidon, 1995; Michael Levey: A History of Western Art; and other (selected) books of WORLD OF ART series: Thames and Hudson, Oxford University Press; etc.

Subject code	Subject name	Requirement	ECTS credit
BMEEPRAA301	Drawing and Composition 3	Mid-semester mark	4

Course type	Course code	Course language	Timetable information
Practice	EN1-ER	English	MON:10:15-14:00(K3R6,K3R5)
Practice	EN2-ER	English	MON:10:15-14:00(K3R6,K3R5)

This subject introduces students to professional specific applications of the drawing skills they acquired so far. Classes present drawing methods for the representation of reality irrespective of the given point of view, from any other one. Students learn to consciously apply perspective in drawing small-scale models as tall buildings, and develop various graphic skills by practising the architectural graphic representation of masonry, stone, wooden and glass surfaces and those of materials. A creative modeling task assigned to students is building an autonomous construction, which focuses on the relations of materials and volume, internal space and the phenomenon of transparency. During model building, problems of space, form and structural arrangement are investigated; while at graphic elaboration, great emphasis is laid on the representation of materials, fluency in perspective drawing and abstraction.

Subject code	Subject name	Requirement	ECTS credit
BMEEPRAA501	Drawing and Composition 5	Mid-semester mark	2

Course type	Course code	Course language	Timetable information
Practice	EN1-ER	English	TUE:14:15-16:00(K3R8)

In this semester students apply their previously acquired skills in the most complex architectural representation: in drawing after imagination. After practising the representation of reality and preparing creative perspective drawings (with the help of the real view, which could not be drawn from real points of view), students in this course prepare fully detailed, external and internal perspective views of buildings of various size, based on plans (e.g. ground plans, sections, elevations), using their experience and creative imagination, applying conventional graphic techniques. Students have to accomplish a modelling task during the semester, which improves creative thinking.

Subject code	Subject name	Requirement	ECTS credit
BMEEPRAG111	Design Skills 1	Mid-semester mark	0

Course type	Course code	Course language	Timetable information
Practice	EN1	English	TUE:16:15-18:00(K3R1); TUE:16:15-18:00(K3R1)

Subject code	Subject name	Requirement	ECTS credit
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BMEEPRAG121	Freehand Drawing for civil engineers	Mid-semester mark	0
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Course type	Course code	Course language	Timetable information
Practice	EN1	English	TUE:18:15-20:00(K3R1); TUE:18:15-20:00(K3R1)

Subject code	Subject name	Requirement	ECTS credit
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BMEEPRAO702	Drawing 7.	Mid-semester mark	2
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Course type	Course code	Course language	Timetable information
Practice	EN1-ER	English	TUE:16:15-18:00(K3R5)

The course examines the relationship between colour and colour, colours and humans, and between colours and the built environment. Technical introduction of pigments, behaviour of colours when mixing pigments, the basic techniques of painting. The role of colours in the creative character and in the thoughtfully built environment. Presentation of the exterior architectural colour design, colour preferences and theories in the different historical periods. The concept and conditions of colour harmonies, guide to the effective use of the different harmony-theories. The use of colour design in everyday projects (authentic colouration in historic renovation, aesthetic urban rehabilitation, etc.) Students learn the architectural use of colour design through a series of projects, from the manual techniques of painting to digital colouration.

Subject code	Subject name	Requirement	ECTS credit
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BMEEPRAT701	Department's Design 2.	Mid-semester mark	3
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Course type	Course code	Course language	Timetable information
Practice	EN1-ER	English	WED:14:15-17:00(K3R1)

This subject based on interior design. The design process focuses on abstract formal approach. Students create different 3D possibilities in the first half of the semester, then they analyse them. The project becomes in this way interior design. The design project based on the fundamental decisions and 3D modelling, which are completed by manual works.

Subject code	Subject name	Requirement	ECTS credit
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BMEEPST0151	Basics of Structural Design	Mid-semester mark	2
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Course type	Course code	Course language	Timetable information
Practice	EN1	English	WED:14:15-16:00(K391)

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
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BMEEPST0655	Design of Reinforced Concrete Structures	Mid-semester mark	2
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Course type	Course code	Course language	Timetable information
Lecture	EN0	English	THU:13:15-15:00(K363)

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
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>	
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
BMEEPSTA101	Introduction to structural design		Exam	2
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>	
Lecture	EN0	English	MON:12:15-14:00(K221)	
The most important methods of analysis and design of engineering structures are presented, together with their modelling, and the applied approximations. It is shown how high school statics (and math) can be applied to engineering structures. The understanding of the behaviour of structures is emphasized.				
Subject code	Subject name		Requirement	ECTS credit
BMEEPSTA301	Strength of Materials 1		Exam	4
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>	
Lecture	EN0	English	WED:12:15-14:00(K391)	
Practice	EN1	English	TUE:10:15-12:00(K392)	
Basic concepts of strength of materials. Behavior of solid bodies. Material laws, constitutive equations: elasticity and plasticity. Central tension and compression. Design criterion. Pure shear. Steel and carpenter joints. Pure bending. Second moment of inertia. Bending in elastic stress state. Symmetric bending and skew bending. Eccentric tension and compression. Core of section. Materials not having tensile strength. Bending in plastic stress state. Bending combined with shear. Calculation of shear stresses. Design for bending. Normal force – moment interaction curve. Torsion. Plane stress state. Possible failure conditions: rupture and yield. Elastic energy.				
Subject code	Subject name		Requirement	ECTS credit
BMEEPSTA501	Design of Load-Bearing Structures		Exam	6
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>	
Lecture	EN0	English	TUE:10:15-12:00(K363); WED:08:15-10:00(K363)	
Practice	EN1	English	FRI:08:15-10:00(K393)	
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
BMEEPSTM101	Special Load-Bearing Structures		Mid-semester mark	4
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>	
Lecture	EN0	English		
Practice	EN1	English		
The subject introduces the special load-bearing structures, such as large span, tall and spatial structures. We introduce the trusses, box-beams, wall-beams and arches as large span structures. We show the static behavior of tall buildings: the concept of the vertical and horizontal load-bearing structures. The behavior of spatial structures is the main topic of the semester. We introduce the RC shells, the brick-shells, the cable and textile membranes, space-trusses, grid shells				
Subject code	Subject name		Requirement	ECTS credit
BMEEPSTT601	Special Load-Bearing Structures		Mid-semester mark	4
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>	
Lecture	EN0	English	TUE:12:15-14:00(K344)	
Practice	EN1	English	FRI:12:15-14:00(K344)	
The subject introduces the special load-bearing structures, such as large span, tall and spatial structures. We introduce the trusses, box-beams, wall-beams and arches as large span structures. We show the static behavior of tall buildings: the concept of the vertical and horizontal load-bearing structures. The behavior of spatial structures is the main topic of the semester. We introduce the RC shells, the brick-shells, the cable and textile membranes, space-trusses, grid shells				



Subject code	Subject name		Requirement	ECTS credit
BMEEPTCEP01	Interdisciplinary, Project based Design F		Mid-semester mark	16
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>	
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
BMEEUI0423	Hungarian Settlements		Exam	2
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>	
Lecture	EN1-ER	English	THU:16:15-18:00(K397)	
The aim of the subject is to familiarize with the characteristics of Hungarian cities and urban development processes. The subject intends to combine the benefits of lectures and lessons; providing the opportunity for active involvement. With the participation of invited speakers, you can hear about the most important periods of Hungarian city history and urban planning features, especially in the context of today's processes. In the remaining classes we deal with the morphological (graphical) analysis of the selected Hungarian settlements. Morphology not only provides an excellent approach to understanding the history of urban development, but it is also worth exploring and learning from a methodological point of view.				
Subject code	Subject name		Requirement	ECTS credit
BMEEUI0893	Cities of the World		Mid-semester mark	2
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>	
Lecture	EN1-ER	English	FRI:12:15-15:00(K210)	
Course on current challenges of global urbanization with special focus on small scale amp; 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
BMEEUI0901	Urban housing		Mid-semester mark	2
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>	
Lecture	EN1-ER	English	FRI:12:15-15:00(K210)	
see moodle: <a href="https://edu.epitesz.bme.hu/course/view.php?id=702">https://edu.epitesz.bme.hu/course/view.php?id=702</a> The seminar is related to the Urban Housing LAB of the BME Department of Urban Planning and Design: <a href="http://urb.bme.hu/urbanhousing/">http://urb.bme.hu/urbanhousing/</a> The objectives of this course are to introduce you to think critically about contemporary mass housing issues and solutions, to have an international comparison about the urban housing situation, and to make understand the complexity of mass housing development. As students arrive from different countries, the seminar uses the opportunity to learn from each other, to discover and compare several case studies. The five 4x45minute-long occasions are differentiated by geopolitical position and key topics: Introduction / urban housing terminology / comparative research method Post-Socialist Central European Countries / large housing estates Western European Countries / contemporary alternative housing solutions Post-Soviet Countries / homeownership USA / affordable housing				
Subject code	Subject name		Requirement	ECTS credit
BMEEUI0995	Architectural Research for Exchange Students - UI		Mid-semester mark	6
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>	
Practice	EN1-ER	English		
Practice	EN2-ER	English		
Practice	EN5-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 Tipologies, 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
<b>Course type</b>	<b>Course code</b>	<b>Course language</b>	<b>Timetable information</b>	
Lecture	EN0-ER	English	TUE:08:15-10:00(K285)	
<p>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.</p>				