Budapest University of Technology and Economics

Bulletin
2017-2018

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BULLETIN

Budapest University of Technology and Economics

2017–2018

An ECTS Guide

Engineering Programs in English
http://www.kth.bme.hu/en/
admission@kth.bme.hu

Bulletin of the Budapest University of Technology and Economics
Engineering Programs in English

Managing Editor: Valéria Balogh
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Photos: János Philip, József Tóth, István Oravecz, György Ádám Horváth

This Catalogue provides information on the programs and services of the Budapest University of Technology and Economics. Curricula, courses, degree requirements, fees and policies are subjects to revision. Specific details may vary from the statements printed here without further notice.
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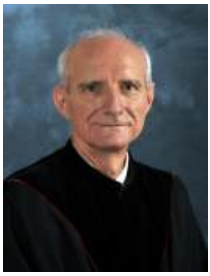

Dear Student,

You are reading the Bulletin of the Budapest University of Technology and Economics. Its direct predecessor, the Institutum Geometricum, was established in 1782 by Emperor Joseph II, as part of the Faculty of Liberal Arts at the University of Buda. During the past 234 years the professors of the university have striven to provide an outstanding quality of education. This has earned the university an international reputation, attracting students and also professors from all over the world.

Our university has eight faculties. They are, in order of foundation: Civil Engineering, Mechanical Engineering, Architecture, Chemical Technology and Biotechnology, Electrical Engineering and Informatics, Transportation Engineering and Vehicle Engineering, Natural Sciences, Economic and Social Sciences.

"Education is the most powerful weapon which you can use to change the world."
This is the quotation from Nelson Mandela. It is unquestionably true and especially applicable for engineers who have the power to make a better world:
Sustainable energy, clean water, safe transport on roads and bridges producing less pollution, buildings for comfortable living and working, machines and robots for work and for amusement, fast and reliable communications, medical equipment that assure a good quality of life for the individual and can be financed by society, and healthy food for us all. All of these goals need engineering solutions to make the world a safer, better and more exciting place to be. **This is also your responsibility.** You can acquire the necessary knowledge and skills to make your own contribution. As a graduate you will certainly do your best for your colleagues, company and society.

Two components are decisive for a good diploma: good teachers and a good student. I can say our university provides you with excellent teachers – **you must be good students!** I am sure it is worth being so.
Besides, you will love it: the university years will be your best memory, the engineering profession will provide you the joy of creation.
Hungary is a member of the European Union. As a student in Budapest you will find general European as well as particular Hungarian cultural customs: food, fashion, folk art, music and dance.

Use this bulletin to help you consider our programs. Come to visit our campus. Better yet, come to study with us for one or two semesters or for an entire degree program. Should you decide to stay for only one semester, this bulletin will also help you choose from among the different semester programs.

The Budapest University of Technology and Economics extends a special welcome to students from abroad.

Károly Veszprémi
vice-rector for education

Avaliable study programmes for 2017/2018 academic year

BSc programmes	Faculty
Chemical Engineering	Faculty of Chemical Technology and Biotechnology
Civil Engineering	Faculty of Civil Engineering
Computer Engineer	Faculty of Electrical Engineering and Informatics
Electrical Engineering	
Mathematics	Faculty of Natural Sciences
Mechanical Engineering	Faculty of Mechanical Engineering
Physics	Faculty of Natural Sciences

MSc programmes	Faculty
Applied Mathematics	Faculty of Natural Sciences
Architecture (Five-year Integrated Master Program)	Faculty of Architecture
Chemical Engineering	Faculty of Chemical Technology and Biotechnology
Computer Engineer	Faculty of Electrical Engineering and Informatics
Electrical Engineering	
Environmental Engineering	Faculty of Chemical Technology and Biotechnology
Mechanical Engineering Modelling	Faculty of Mechanical Engineering
Physics	Faculty of Natural Sciences
Structural Engineering	Faculty of Civil Engineering
Transport Engineering	Faculty of Transportation Engineering and Vehicle Engineering
Vehicle Engineering	

PhD programmes	Faculty
Study programmes	Faculty
Architecture Engineering	Faculty of Architecture
Chemistry	Faculty of Chemical Technology and Biotechnology
Chemical- Bio- and Environmental Engineering	
Civil Engineering Sciences and Earth Sciences	Faculty of Civil Engineering
Computer Engineer	Faculty of Electrical Engineering and Informatics
Electrical Engineering	
Mathematics and Computer Science	Faculty of Natural Sciences
Mechanical Engineering Science	Faculty of Mechanical Engineering
Logistic Engineering	Faculty of Transportation Engineering and Vehicle Engineering
Transportation Engineering	
Vehicle Engineering	
Physical Sciences	Faculty of Natural Sciences

Tuition Fees for 2017/2018 academic year

Course	For EU citizens	For non-EU citizens
Preparatory Course and General Course in Architecture	EUR 3,200 / semester	EUR 3,200 / semester
Undergraduate Tuition Fees, leading to B.Sc. degree	EUR 2,250 / semester	EUR 3,200 / semester
Undergraduate Tuition Fees, leading to B.Sc. degree in Civil Engineering	EUR 3,200 / semester	EUR 3,200 / semester
Graduate Tuition Fees, leading to M.Sc. degree for graduates of external higher education institutions	EUR 3,200 / semester	EUR 3,500 / semester
Graduate Tuition Fees, leading to M.Sc. degree for graduates of BME	EUR 2,850 / semester	EUR 3,200 / semester
Graduate Tuition Fees, leading to M.Sc. degree in Civil Engineering	EUR 3,800 / semester	EUR 3,800 / semester
Graduate Tuition Fees, leading to M.Sc. degree in Architecture	EUR 2,850 / semester	EUR 3,200 / semester
Postgraduate Tuition Fees, leading to Ph.D. or DLA degree (Depending on the character of the research and course programs)	EUR 4,500 / semester	EUR 4,500 / semester
Tuition Fees for special students (courses leading to no degree)	EUR 110/credits (min. 12 lessons/week)	EUR 110/credits (min. 12 lessons/week)
Tuition Fees for special students (courses leading to no degree) in Civil Engineering	EUR 2,000 / semester minimum	EUR 2,000 / semester minimum

Faculty of Architecture

The Faculty of Architecture at the Budapest University of Technology and Economics focuses on training highly professional experts in architectural engineering who are aware of the social and cultural implications of their profession. Versatility is emphasised so that students will gain fundamental knowledge and abilities in every possible field of architecture and be able to find work in a highly competitive job market, and in any building- or design-related area of consulting, construction, and management. The 5-year program in English leads directly to an MSc degree in Architecture and Architectural Engineering (Dipl. Ing. Arch.), but it is also possible to graduate as a Bachelor of Science in Architecture.

Graduates of the Faculty of Architecture are qualified for a broad spectrum of architectural occupations:

- Design, construction and maintenance of residential, public, industrial and agricultural buildings;
- Reconstruction and the preservation of historical monuments;
- Urban design and settlement planning; and
- Administration of all these activities.

The curricula were organised on Swiss and German models. The Faculty has maintained these traditions for the last 40 years but provides additional European and international dimensions through guest lecturers from abroad, topical short courses, workshop seminars and exchange programs.

The five year program of the Faculty of Architecture taught in English is in full conformity with the five-year program provided in Hungarian, which after two years practice and experience is accepted for access to EUR-ING title.

General course – Preparatory Course

The year program in English, called the General Course preceides the Degree Program. It is designed to develop the skills of students from abroad so they will be at no disadvantage in meeting the Faculty's exacting educational standards. Students are introduced to various aspects of the profession they have selected, and they concentrate on studying English and basic technical subjects such as mathematics and freehand drawing. Students who show enough skills at the Placement Test can automatically (immediately) start the Degree Program.

Academic Program of the Faculty of Architecture: BSc/MSc Studies

The two-level B.Sc, M.Sc training in the English speaking section of the Faculty of Architecture is realized in a split-up system, in full comformity with the Hungarian speaking section. For B.Sc degree students has to accumulate min 240 credit points, for M.Sc degree min 300 credit points by accomplishing the obligatory subjects and gathening the remaining credit points by accomplishing elective subjects too. B.Sc degree can be obtained in a minimum of four years, M.Sc degree in a minimum of five years of study.

Students, both international and Hungarian, who have a command of both languages can choose from either program. The participation of Hungarian students in the program given in English has obvious advantages. It eases the integration of international students into the society, which surrounds them during the years of their studies. It also attracts students from European, American and other universities worldwide to study in Budapest within the the framework of the International Student Exchange Program and otheragreements.

Hungarian students likewise gain the opportunity to study at schools of architecture abroad. These exchanges will become a powerful factor in achieving real convertibility among educational systemworldwise and, eventually, mutual international recognition of degrees.

Master's Program

Students who have earned BSc degrees in other schools of architecture can join the Master's Program. Programs will be tailored to their previous education and special needs. In general they are admitted to the last two years of the five years program, and they have to collect minimum 120 credits. These studies encompass a wide range of complex design topics and elective subjects grouped in three directions:

- Structural Design - buildings and other structures.
- Architectural Design - buildings with different functions, their interiors and sorroundings; the preservation of historical buildings.
- Town Planning - urban design, settlement planning and management.

Note: The Faculty of Architecture reserves the right of changing the Curricula.

Graduation

Graduation from the University is based on the successful completion of examinations in all subjects and on the successful defence of a diploma project before a Final Examination Board. The examinations are public and the Board consists of professors and eminent specialists in the profession. Diploma projects are prepared in the last semester under departmental guidance and can be submitted only by students with an "absolutorium" (university leaving certificate). The diploma project is expected to reflect its author's familiarity with technical and aesthetic knowledge fundamental to architectural practice, and his/her creativity in applying it. Currently, international agreements make it possible for certain Hungarian students to prepare and defend their diploma projects in the university of another country. Students from abroad can correspondingly prepare and defend their thesis projects under the guidance of the Faculty of Architecture at the Budapest University of Technology and Economics.

Departments

Department of Construction Technology and Management
Department of Architectural Representation
Department for History of Architecture and of Monuments
Department of Building Energetics and Building Services
  Laboratory of Thermal Physics
Department of Building Constructions
  Laboratory of Building Acoustics
Department of Industrial and Agricultural Building Design
Department of Public Building Design
Department of Residential Buildings
Department of Design
Department of Mechanics, Materials and Structures
Department of Urban Studies

Budapest University of Technology and Economics
Faculty of Architecture
Faculty Office:
Building R, ground floor, room 001.
Mailing Address: Műegyetem rkp. 7-9.
H-1111 Budapest, Hungary
Phone: (+36-1) 463-3728
Fax: (+36-1) 463-2550

Dean of the Faculty: Csaba Molnár, DLA
Vice-Dean of the Faculty: Dr. Gábor Nemes
Program Coordinators:
Mrs. Mária Orbán Lisztes, Ms. Gyöngyi Tamás

General (Preparatory) Courses in Architecture

Subject			hours/week		
Name	Code	Credits	1	2	Requisities
Basic Mathematics 1	BMETETOPB22	-	4		
Computer Literacy 1	BMEEPAGG101	-	4		
Engineering Sciences	BMETETOP117	-	4		
Geometrical Construction 1	BMEEPAGG111	-	5		
Freehand Drawing 1	BMEEPRAG101	-	6		
Design Skills 1	BMEEPRAG111	-	2		
Basic Mathematics 2	BMETETOPB23	-		5	Basic Mathematics 1a
Computer Literacy 2	BMEEPAGG201	-		2	Computer Literacy 1a
Geometrical Constructions 2	BMEEPAGG211	-		3	Geometrical Constructions 1a
Freehand Drawing 2	BMEEPRAG201	-		6	Freehand Drawing 1a
Fundamental of Structures	BMEEPSTG201	-		4	
Basic Tools of Building Constructions	BMEEPESG201	-		2	
Design Skills 2	BMEEPRAG211	-		2	Freehand Drawing 1a
Fundamental of Architectural Design	BMEEPRAG221	-		2	
Compulsory English for Pre-Eng. Students I.	BMEGT63A201	-	0/6/0p		
Compulsory English for Pre-Eng. Students II.	BMEGT63A202	-		0/6/0p	BMEGT63A201a

a) can be taken parallelly in the same semester. For students of BME Faculty of Architecture only criteria subjects (no credit points)

Students can enter the BSc/MSc degree program only after completing all the subjects of the second semester of General Courses in Architecture.

Curriculum of BSc/MSc Subjects

Subject			lectures/practical lectures/laboratory							
Name	Code	Credits	1	2	3	4	5	6	7	Requisities
Mathematics 1	BMETE90AX33	4	2/2/0e							-
Philosophy	BMEGT411099	2	2/0/0p							-
Descriptive Geometry 1	BMEEPAGA102	5	3/2/0e							-
Introduction to Building construction	BMEEPESA101	2	2/0/0p							-
History of Architecture I. (The Beginnings)	BMEEPETA101	3	2/1/0e							-
Introduction to Structural Design	BMEEPSTA101	2	2/0/0e							-
Drawing 1	BMEEPRAA101	5	0/5/0p							-
Introduction to Architecture	BMEEPUIA101	2	2/0/0p							-
Space Composition	BMEEPKOA101	5	0/5/0p							-
Mathematics 2	BMETE90AX34	2		0/2/0p						BMETE90AX33
Descriptive Geometry 2	BMEEPAGA202	5		3/2/0e						BMEEPAGA102
Building Constructions 1	BMEEPESA201	4		2/2/0e						BMEEPESA101, BMEEPSTA101s
Statics	BMEEPSTA201	4		2/2/0e						BMEEPSTA101
History of Architechture 2 (Antiquity)	BMEEPETA201	3		2/1/0p						-
Drawing 2	BMEEPRAA201	4		0/4/0p						BMEEPRAA101
Residential Building Design 1	BMEEPLAA201	2		2/0/0e						BMEEPUIA101
Basics of Architecture	BMEEPLAA202	6		0/6/0p						BMEEPUIA101, BMEEPRAA101, BMEEPKOA101
Building Materials I	BMEEOEMA301	3			2/1/0p					-
Architectural Informatics 1 - IT Applications	BMEEPAGA301	2			1/1/0p					-
Building Physics	BMEEPEGA301	2			2/0/0p					BMEEPESA101
Strength of Materials 1	BMEEPSTA301	4			2/2/0e					BMEEPSTA201, BMETE90AX33
History of Architecture 3 (Medieval)	BMEEPETA301	3			2/1/0e					BMEEPETA201
Drawing 3	BMEEPRAA301	4			0/4/0p					BMEEPRAA201
Public Building Design 1	BMEEPKOA301	2			2/0/0e					BMEEPLAA201, BMEEPLAA202
Residential Building Design 2	BMEEPLAA301	6			0/6/0p					BMEEPLAA202, BMEEPAGA102s BMEEPLAA201
Building Constructions 2	BMEEPESA301	4			2/2/0e					BMEEPSTA101s, BMEEPAGA102, BMEEPESA101

Subject			lectures/practical lectures/laboratory							
Name	Code	Credits	1	2	3	4	5	6	7	Requisities
Sociology for Architects	BMEGT43A044	2				2/0/0e				-
Architectural Inf. 2 - Digital Representation	BMEEPAGA401	3				1/2/0p				BMEEPAGA202, BMEEPAGA301
Building Constructions 3	BMEEPESA401	4				2/2/0e				BMEEPESA201
Strength of Materials 2	BMEEPSTA401	6				4/2/0p				BMETE90AX34, BMEEPSTA301
Strength of Materials Global	BMEEPSTA499									BMEEPSTA401a
History of Architecture 4	BMEEPETA401	3				2/1/0e				BMEEPETA301
Drawing 4	BMEEPRAA401	2				0/2/0p				BMEEPRAA301
Design Methodology	BMEEPKOA402	2				2/0/0e				BMEEPLAA301, BMEEPKOA301
Architecture of Workplaces 1	BMEEPIPA401	2				2/0/0e				BMEEPLAA301, BMEEPK0A301
Public Building Design 2	BMEEPKOA401	6				0/6/0p				BMEEPLAA301, BMEEPK0A301
Architectural Inf. 3 - CAAD for Architects	BMEEPAGA501	3					1/2/0p			BMEEPAGA401, BMEEPLAA301, BMEEPESA301
Construction Man. 1 - Basics of Construction	BMEEPEKA501	2					2/0/0p			BMEEPESA301
Building Service Engineering 1	BMEEPEGA501	2					2/0/0p			BMEEPESA201
Building Constructions 4	BMEEPESA501	4					2/2/0p			BMEEPESA301
Global of Building Constructions Basic	BMEEPESA599									BMEEPESA401, BMEEPESA501a
Design of Load-Bearing Structures	BMEEPSTA501	6					4/2/0e			BMEEPAGA202, BMEEPSTA499a, BMEPSTA401
History of Architeture 5 (19th century)	BMEEPETA501	3					2/1/0p			BMEEPETA401, BMEEPETA101
Drawing 5	BMEEPRAA501	2					0/2/0p			BMEEPRAA401
Urban Design 1	BMEEPUIA501	2					2/0/0e			BMEEPKOA401
Architecture of Workplaces 2	BMEEPIPA501	6					0/6/0p			BMEEPKOA401, BMEEPIPA401
Design Global Basic	BMEEPKOA599									BMEEPIPA501a, BMEEPRAA401, BMEEPK0A402
Economics 1. (Microeconomics)	BMEGT301004	2						2/0/0p		-
Construction Management.2 * (Building Project Management)	BMEEPEKT601	2						2/0/0e		BMEEPEKA501
Construction Management.2 ** (Building Project Management)	BMEEPEKK601	4						2/2/0e		BMEEPEKA501
Building Service Engineering 2	BMEEPEGA601	2						2/0/0e		BMEEPEGA301
Building Constructions 5	BMEEPESA602	4						2/2/0e		BMEEPESA301, BMEEPESA401
Preservation of Historic Monuments *	BMEEPETT611	2						2/0/0p		BMEEPKOA599, BMEEPETA501
History of Achitecture 6 *	BMEEPETO601	3						2/1/0p		BMEEPETA401
Drawing 6	BMEEPRAA601	2						0/2/0p		BMEEPRAA501
Department's Design 1 *	BMEEPUIT601	3						0/3/0p		BMEEPKOA599
Urban Design 2	BMEEPUIA601	6						0/6/0p		BMEEPUIA501, BMEEPIPA501
Special Load-Bearing Structures *	BMEEPSTT601	4						2/2/0e		BMEEPSTA501
Building Materials 2 **	BMEEOEMK601	3						2/1/0e		BMEEOEMA301
History of Architecture Global* (basic)	BMEEPETO699									BMEEPETA401
Reinforced Concrete Structures I.**	BMEEPSTK601	6						4/2/0e		BMEEPSTA501
Economics 2. (Macroeconomics)	BMEGT301924	2							0/2/0/p	-
Construction Management 3 (Planning of Construction Technology)	BMEEPEKA701	4							2/2/0e	BMEEPEKA501
Building Constructions 6	BMEEPEST702	4							2/2/0p	BMEEPESA599
Steel and Timber Structures **	BMEEPSTB701	4							4/0/0e	BMEEPSTA501
History of Art 1 *	BMEEPETT721	2							2/0/0e	BMEEPKOA599
Drawing 7 *	BMEEPRAO702	2							0/2/0p	BMEEPRAA501, BMEEPKOA599
Department's Design 2 *	BMEEPRAT701	3							0/3/0p	BMEEPUIT601
Department design 3.*	BMEPExxT711	8							0/8/0p	BMEEPKOA599, BMEEPUIT601, BMEEPUIA601
Global In Structures *	BMEEPSTT799									BMEEPSTT601a
History of Hungarian Architecture **	BMEEPETB701	2							2/0/0p	BMEEPETA501
Soil Mechanics **	BMEEOGTK701	3							2/1/0e	BMEPESA301
BSc Diploma Studio 1 **	BMEEPxxB722	6							0/6/0p	BMEEPSTA499, BMEEPESA599 BMEPKOA599, BMEEPUIA601, BMEEPEKK601, BMEEPEGA501a

Curriculum of BSc/MSc Subjects (contd.)

Subject			hours/week			
Name	Code	Credits	8	9	10	Requisities
Building and Architectural Economics	BMEEPEKA801	2	2/0/0p			BMEEPLAA301
Facility Management *	BMEEPEK0633	2	2/060e			
History of Hungarian Achitecture 1. *	BMEEPETO801	2	2/0/0p			BMEEPKOA599, BMEEPETA501
Drawing 8 *	BMEEPRAO801	2	0/2/0p			BMEEPRAA501, BMEEPKOA599
Urbanism *	BMEEPUI0805	2	2/0/0p			-
Contemporary Arch. Offices *	BMEEPIP0893	2	0/2/0p			-
Res. Design and Cont. Competitions*	BMEEPLA0897	2	2/0/0e			BMEEPLAA301
Complex Design 1 *	BMEEPxxT811	10	0/10/0p			BMEEPxxT711, BMEEPSTA499, BMEEPESA599
Building Construction Global *	BMEEPEST899					BMEEPESA602, BMEEPEST702
Construction Management 4. ** (Controlling of Construction technology)	BMEEPEKK801	4	2/2/0e			BMEEPEKA701, BMEEPESA501
Building Constructions 7 **	BMEEPESK801	4	2/2/0e			BMEEPESA601
BSc Diploma 2**	BMEEPxxBD01	12	0/12/0p			All the subjects and globals of previous semesters
Construction Law *, **	BMEEPEKO901*	2		2/0/0p		-
	BMEEPEKB801 **	2	2/0/0p			
Design of Reinforced Concrete structures*	BMEEPST0655	2		2/0/0e		-
Drawing 9 *	BMEEPRAT901	2		0/2/0p		BMEEPRAA501
Architectural Interiors*	BMEEPKO0905	2		0/2/0p		BMEEPKOA401
The Form in Architecture *	BMEEPRA0404	2		0/2/0p		-
History of Theory of Architecture 1.*	BMEEPET0407	2		2/0/0e		-
Complex Design 2 *	BMEEPxxT911	10		0/10/0p		BMEEPxxT811, BMEEPEKA701, BMEEPEGA601
Theory of Architecture Design *	BMEEPETO921	2		2/0/0e		BMEEPKOA599
Contemporary Hungarian Architecture 2. *	BMEEPETO901	2		2/0/0p		BMEEPETA501, BMEEPETO601
History of Architecture Global *	BMEEPETT999					BMEEPETO601, BMEEPETO801, BMEEPETO901a
Diploma project studio * Min 270 credits all subjects and globals	BMEEPxxTD01	30			0/30/0e	

a) can be taken parallelly in the same semester
s) signature only
**: Obligatory for MSc / Elective for B. Sc. Degree*
***: Obligatory for B. Sc. / Elective for M. Sc. Degree*
Minimum number of credits for B. Sc. Degree: 240
Minimum number of credits for M. Sc. Degree: 300

Description of General Courses in Architecture

Design skills 1.

Mr. Gábor Nemes
The Basic formal components of Buildings: walls, beams, pillars, floors. Their appearance and formal varieties. The Basics of spatial compositions. The idea of the architectural space and its typology.

Design skills 2.

Mr. Gábor Nemes
Developing the skills of students to read 2D architectural drawings. To develop skills to transfer 2D drawings to 3D expression. To develop skills to transformtke 3D reality into 2D projection drawings.

Freehand Drawing 1-2.

DLA Balázs Balogh, Dr. Balázs Méhes
Introduction to the basic laws of perspective, the onevanising- point perspective, cubes and squares; simple body settings, cylindrical bodies, towers viewed from the ground, half-cylindrical rings, and more complicated settings and orthogonal pictures. Life drawing, shadow techniques, curved surfaces and rounded bodies. Tonus drills, draperies, plaster ornaments, flowers in ink, still life (plasters), coloured pencil techniques, aquarell and still-life interiors. Interiors and furniture, corridors, staircases, corridors or exteriors (weather permitting). (Criteria subject)

Fundamentals of Architectural Design 4

DLA Balázs Balogh
It is an attempt to explain the grammar of architectural design, to describe the basic factors on which the creative process of design depends. The course intends to give students a clear picture of the profession of architecture as they start their training and to give them some guidance on the attitude of mind that will help them in their approach to design problems. (Criteria subject)

Basic Tools of Building Constructions

Dr. Fülöp Zsuzsanna, Dr. Igaz György
Construction is the realization of architecture. Building construction classes will help students master the control of this realization process, through the learning of academic principles behind practical construction theory. Design must be realized through techniques founded on proper methods and principles of building construction. Course develops a basic understanding of building construction vocabulary, drafting symbolism, various building systems and building components and their interactions. To be able to select appropriate building systems and detail solutions for design tasks.

Computer Literacy 1

Mihály Szoboszlai PhD
General information about computing, computers, and peripheral devices. Input, output and data storage. Methods of problem solving on computers. Algorithms and programs. Basic elements of a programming language, such as symbols, datatypes, statements, control structures and elementary I/O. Practical work on a computer; development and running of small programs. Text editor and translator.

Computer Literacy 2

Mihály Szoboszlai PhD
Introduction to computers, operating systems and computer networks. Browsing and organizing information through Internet, use of Internet based communication. Computers in architectural office: word porcessing, using spreadsheets, creating presentations. Basics of pixelgraphics and image manipulation.

Geometrical Contrsuctions 1

Pál Ledneczki PhD I
ntroduction of drawing instruments, writing letters, text. Special lines and points of a triangle, theorems on right triangle. Parallel transversals. Circle power. Loci problems. Geometrical transformation: congruencies, similarity. Golden ratio, constructions on regular pentagon. Affine mapping, axial affinity, circle and ellipse. Osculating circles at vertices of an ellipse. Central-axial collineation.

Geometrical Contrsuctions 2

Pál Ledneczki PhD
Apollonian problems. Focal definitions of conic sections, tangents, asymptotes of hyperbola. Spatial elements and their relative positions. Angles and distances. 3D lici problems. Constructions in 3D, axonometric sketch. Orthogonal projection. Multi-view system. Recontruction of 3-dimensional object from 2-dimensional images. Development of polyhedral surfaces, paper models. Platonic solids. Calculation on angles distances, surface area and volume.

Fundamentals of Structures

BMEEPSTA001

Dr András Draskóczy, Dr Gábor Domokos
Introduction: requirements of the built environment. 1st site visit: an existing, functioning building. Parts of buildings. Discussion of experiences of the 1st site visit: functions and requirements of parts of buildings. 2nd site visit: a construction site. Loadbearing parts of buildings. Discussion of experiences of the 2nd site visit: functions and requirements of loadbearing parts of buildings. The notion of safety. 3rd site visit: laboratory testing of structural members (brickwork column, reinforced concrete beam). Loads and responses when beeing loaded. Discussion of experiences of the 3rd site visit: structural members; ways of becoming unfit for use: rupture, loss of stability (overturning, sliding, buckling), excessive cracking and deformations. 4th site visit: laboratorxy testing of structural materials. Yield and rupture. Collection of strength measurement data. Discussion of experiences of the 4th site visit: statistical evaluation of measurement data. The notion of safety, safety factors of materials and loads. 5th site visit: a project buro. Graphical presentations of buildings. Architecture and structure. Results of structural analysis. Discussion of experiences of the 5th site visit: Parts and kinds of documentations. Scales and graphical symbols. Modelling of structures, structural projects. 6th site visit: ready structure construction site. Discussion of experiences of the 5th site visit: modelling of structures. The static model.

Description of MSc Subjects

Mathematics 1

BMETE90AX24

Dr. Béla Barabás

Integration: Applications of definite integrals. Areas between curves. Volumes of solids of revolution. Areas of surfaces of revolution. Centers of mass. Differential equations. Seperable equations. Homogeneous equations. First order linear equations. Bernoulli-equations. Exact-equations. Integrating factors. Second order linear differential equations. Equations with constant coefficients. Method of undetermined coefficients. Numerical methods for solutions. Multiple integrals. Double integrals. Area, moments and center of mass. Double integral in polar form. Triple integrals. (4 credits)

Descriptive Geometry 1

BMEEPAGA102

Analisys of relative position of spatial elements in multiview system; intersection of line and plane, pair of planes. Auxiliary projections, intersection of polyhedron and plane, pair of polyhedrons, Representation of regular polyhedron by means of transformations. Revoluttion of plane, metrical problems. Contruction of shadow. Oblique and orthogonal axonometry. Perspective. Images of circle and sphere. Intersection of sphere and plane. (5 credits)

Introduction to Building construction

BMEEPESA101

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 acquanted 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. (2 credits)

History of Architecture I. (The Beginnings)

BMEEPETA101

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. (3 credits)

Introduction to Structural Design

BMEEPSTA101

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. (2 credits)

Drawing and Composition 1

BMEEPRAA101

The objective of this subject is to introduce students to the fundamentals of perspective spatial representation based on geometrical solids (e.g. cube, cylinder, quadratic and triangular prisms.) In the course of the semester, drawing tasks range from simple arrangements to complex spatial constructions, while representation techniques range from constructive line drawing to tinted drawing (showing light-shadows effects), applying lead pencil. (5 credits)

Introduction to Architecture

BMEEPUIA101

The subject intends to raise and maintain first-year students' professional interest and give a common architectural language preparing for further special courses. This subject intends to make students' attitude positive towards architecture; enlarge their intellectual capacities and get them understand the many-sided learning processes of architecture: lectures, texts, project analyses, films etc. (2 credits)

Space Composition

BMEEPKOA101

Space composition is the creative course of the first semester, during which the students study the basics of the composition of (architectural) space. The aim of the course on one hand is to develop one's creativity, on the other hand getting a deeper knowledge about the nature of creating architectural space through space-composition exercises. This knowledge will be the basis of the process of architectural design in the forthcoming semesters. (5 credits)

Mathematics 2

BMETE90AX34

Limit, continuity, partial derivatives and differentiability of functions of multiple variables. Equation of the tangent plane. Local extrema of functions of two variables. Gradient and directional derivative. Divergence, rotation. Double and triple integrals and their applications. Polar coordinates. Substitution theorem for double integrals. Curves in the 3D space, tangent line, arc length. Line integral. 3D surfaces. Separable differential equations, first order linear differential equations. Algebraic form of complex numbers. Second order linear differential equations with constant coefficients. Taylor polynomial of exp(x), sin(x), cos(x). Eigenvalues and eigenvectors of matrices.
(2 credits)

Descriptive Geometry 2

BMEEPAGA202

Curved lines and surfaces; guadratic surfaces, surfaces of revolution; developable surfaces, screw surfaces, ruled surfaces. Representation in multi-view system, axonometry and perspective. Construction of tangent plane, contour and shadow. Intersection of surface and plane, intersection of a pair of surfaces. Topographic map, projection with elevation, sections, earth works platform, road, cuts and fills. (5 credits)

Building Constructions 1

BMEEPESA201

This subject presents the details of the main load-bearing constructions (walls, floors, stairs) and the joints between them. Wall supported / skeleton frame, or mixed construction. Walls: Effects on walls, and how to fulfil the requirements. Sorting the walls by function, position, material, by layer-order. Walls built from elements, the development of walling elements. Floors: Functions, effects on floors, how to fulfil the requirements. Elements of floor construction. Types: plain floors (in details), arches (overview). The materials, construction lines, building methods, About the future of floors Joints between walls – floors, skeleton frames – floors. Methodology of the floor design. Stairs: Functions, effects on staires, how to fulfil the requirements, principles of stressing and how to choose construction. Sorting the constructions by material, load bearing method, building method etc. Design possibilities. (4 credits)

Statics

BMEEPSTA201

The basic laws and theorems of statics are presented and applied to engineering structures. Statically determinate trusses, beams, frames, and assembled structures are considered, the line of trust is presented. Internal forces are treated in 2D and 3D. (4 credits)

History of Architechture 2 (Antiquity)

BMEEPETA201

Basic topics: Ancient civilizations. The Sumer millenium. From Old Babylon to Parthians. Millenium of pyramids. New Kingdom, Ptolemaic age. Greek temenos, temple, town. Greek public buildings. Roman town, house types. Roman temples. Roman public buildings. Roman palaces. Practical themes: simplified column-orders, Ur house, zikkurat, temple, apadana – its elevation, akhaimendian rock grave, pyramid ensemble, Khonsu temple, Egyptian house. Ur towertemple – axonometric view, Khonsu temple – half-axonometric view, Greek Doric order – details. Greek temple – half axonometric view, Greek Ionic order – details. Colosseum type elevation, house-types, Greek Corinthian order – details, Roman vaults and domes. Pantheon. Basilical construction. (3 credits)

Drawing and Composition 2

BMEEPRAA201

This subject intends to inspire students to think creatively via free-hand drawing tasks. It is closely related to the material covered by preceding semester, however, spatial arrangements are complex, and students are expected to creatively supplement them and apply light-shadow effects. Classes present the basics of the theory of colours and its architectural application. After a crative model building task, students return to the pepresentation of complex spatial forms practised in the previous semster (e. g. furniture, drapery, details of space, drawing studio etc.) to apply and practise a wide range of drawing techniques (e.g. pencil, crayon, ink, washed drawing). (4 credits)

Residential Building Design 1

BMEEPLAA201

This class covers the theory and fundamentals of residence building design, which is the same as the fifth-year and BSc training. The time for enrolment is the second semester, and the prerequisite for admission is successful completion of the Introduction to Architecture course. The goal of the class is the mastery of basic knowledge concerning the formation of a dwelling environment, residential building design, and housing topics in general. The lecture series presents the historical and intellectual evolution in housing design – providing information on the historical precedents and intellectual roots for the formation of residential areas and apartment buildings, as well as a special perspective on last century's trends, which determine design practice to this day. Also presented are expectations (operative or otherwise) for the formation of dwelling areas, apartment arrangement methods, types of residential buildings in use and the specific requirements that apply, lessons of techniques used in professional practice, problems of apartment buildings' architectural formation and aesthetic appearance, as well as fundamental relationships in housing architecture. Planned lectures will only deal with the exact know-how as necessary, and this knowledge must be acquired through the class textbook (Residential Building Design by Dr. János Bitó). The class concludes with an oral exam, questions being derived in part from the lectures and in part from textbook material. (2 credits)

Basics of Architecture

BMEEPLAA202

Architectural planning is a creative process, typified mainly by an end result that is either one-of-a-kind in its details or uncommon as a whole. Hence, the design path is unique in and of itself. In the case of design activity, instruction does not only impart basic knowledge of the profession (the mastery and practice of which is a requirement of the design process), but also develops creative skills. The Fundamentals of Architecture class consists of weekly practice; before receiving each assignment, however, there is a general lecture held for all that year's students. Within the subject, architectural pupils encounter tasks that require architectural-based problem solving and creative trouble-shooting. Classes of 25-28 pupils are run by 3-4 main instructors. In the course of the semester, there are several small planning tasks to be solved, modelling, architectural drawing, and technical drawing with equipment. Design tasks are built around a unifying theme or motto. (6 credits)

Building Materials I

BMEEOEMA301

Material properties and classification of building materials (densities, mechanical properties, hydrotechnical properties, thermal properties). Detailed introduction of timber, masonry, mortar, concrete (and constituent materials), metals, polymers, glass used in architecture. Fields of application. Types of commercial products. Material testing methods for building materials (tensile, compressive and bending testing). Observation of basic natural stones and applications.Students work individually or in small groups during the laboratory sessions and study the physical and mechanical properties of building materials. (3 credits)

Architectural Informatics 1

BMEEPAGA301

Informatics in the architectural office. Solving common tasks of the architectural practice with the extemsive use of word-processors, spreadsheets, and other applications. Numerical solutions of mathematical problems in the architectural practice. Communications through Internet-based applications. Presence on the Internet. The subject excpects ECDL-level knowledge in Word processing and Spreadsheets. (2 credits)

Building Physics

BMEEPEGA301

One dimensional steady state heat transfer of composit 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)
Acoustics. The acoustical quality of the built up environment. (2 credits)

Strength of Materials 1

BMEEPSTA301

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. (4 credits)

History of Architecture 3 (Medieval)

BMEEPETA301

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. (3 credits)

Drawing and Composition 3

BMEEPRAA301

This subject introduces students to proffesional specific applications of the drawing skills they acquired so far. Classes present drawing methods for the representation of reality irrepective of the given point of view, from any other one. Students learn to consciously apply perspective in drawing samll-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. (4 credits)

Public Building Design 1

BMEEPKOA301

Our basis for public building design methodology, the function of public buildings and technical requirements, achieved via a knowledge of architectural history and precedent of type. The course pattern will analyze important examples of Hungarian and International public buildings regarding architectural space, architectural form, the use of materials and structures, in relationship to various environmental factors. (2 credits)

Residential Building Design 2

BMEEPLAA301

This class covers the practice of residential house planning in studio, both for general students and BSc training. Prerequisites are the successful completion of Residence Building Design 1, Fundamentals of Architecture, and Descriptive Geometry 1 courses. Practice takes place once a week in the form of studio classes and consultations. The central elements of the course include the apartment, the main goal being the mastery of a basic knowledge of flats and their practical use, as well as an understanding of relationships between flat and building, building and environment. The flat, as a function of architectural engineering praxis, appears in countless forms. Obviously, we have no means to cover even all the basic cases in one semester – if the concept "teaching" even applies in the case of a creative activity. This is why the class focuses on developing the students' approach to design work – to develop in students a complex, yet practical standpoint towards spatial arrangement and formation, after they have acquired a thorough knowledge of function. We intend for students, upon completing this class, to be capable of recognizing in all its depths a function – in this case, a flat. Later, in the course of planning, they can make independent, professional decisions on the basis of information they know to be true. That means they can plan good flats with little outside assistance. (6 credits)

Building Constructions 2

BMEEPESA301

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. (4 credits)

Sociology for Architects

BMEGT43A044

Dr. János Farkas, Dr. Adrienne Csizmady

Benefits of sociology. Origins of sociology as a science. Principles and concepts of sociology. Formal organisations in the extension of human capabilities. Interaction in formal organisations. Culture, modernism, and computerisation. Public opinion. Statistical analysis. Change from country life to modern city life. Housing and public policy. Political ideology and housing policy. The home and social status. (2 credits)

Architectural Informatics 2

BMEEPAGA401

Fundamentals of vector graphics, two-dimensional (2D), and three-dimensional (3D) Computer Aided Design (CAD) systems. Application of Cartesian and polar coordinate systems. CAD principles from simple 2D drafting to the developing of architectural drawings with the use of layers and library elements (blocks). 3D modelling of geometrical shapes and architectural details. (3 credits)

Building Constructions 3

BMEEPESA401

General and detailed review of the structures of the elevation constructions. The most important aim of the subject is the analysis of the external separating constructions. Principles of the continuity of the protecting levels depending on the position in the structure. Multi-layer external separating walls, construction methods of the elevation claddings and elevation coverings, the ordinary and special external doors and windows. Complementary structures for the external doors and windows, especially the shading devices. Requirements for the external separating structures and performances of the different constructions. Building physics: heat and vapour physics, acoustic features of the external separating structures. (4 credits)

Strength of Materials 2

BMEEPSTA401

Strength of materials is a compulsory engineering subject for second year students in architecture. The goals of the subject are to show how to
- determine the deformations of load-bearing structures
- find the internal forces of statically indeterminate structures.

In addition to theoretical methods, we also show examples in structural engineering. (6 credits)

History of Architecture 4

BMEEPETA401

Brunelleschi and the early renaissance architecture in Tuscany. The evolution of the renaissance palace in Florence and in the Northern regions of Italy. The architect and scholar Leon Battista Alberti. Bramante and and the influence of his circle in the first half of the 16th century. Michelangelo Buonarroti architect. Renaissance in Lombardy and Venice. Mannerist architecture. The late sixteenth century: Palladio and Vignola. Urban development and early baroque architecture in Rome under Pope Sixtus V. The architecture of Lorenzo Bernini and Francesco Borromini. Baroque in Venice and in Piemont. Architecture in France in the 16-17th centuries. Baroque in central Europe: Austria, Bohemia and Germany. (3 credits)

Drawing and Composition 4

BMEEPRAA401

The main topic in the syllabus of the subject is the 'analytic'representation of external spaces: students learn how to recognise the invisible geometrical-structural relations beloww the surface of buildings through preparing 'X-ray drawings'. Not only the views but also the sections of buildings are studied in order to understand and grasp the gist of the architectural structure behind the view, and to

prepare such 'X-ray drawings'that represent more complex architectural compositions than what the eyes can see. Students prepare drawings on external sites (such as the Museum of Fine Arts, the Great Market Hall, and the assembly halls of BUTE and Corvinus University) to investigate the options of perspective drawing and the versions of plane representation of large spaces. (2 credits)

Design Methodology

BMEEPKOA402

Design Methodology deals with theoretical and practical methodology of architectural design flow. The point of theoretical Design Methodology is the design itself as a process that can be modeled. The process of architectural design thus can be compared to an informatics system, so for making the method more clear. Practical Design Methodology is closely connected to the Public Building Design 2 process itself, extending it with special design factors and details. Through analyzing existing buildings and fictional situations interesting practical problems and solutions can be discussed. With the help of invited practicing architects, special methods of new facilities and building- reconstructions are presented, along with the design of technologically or structurally determined buildings. Because of its importance, sustainability, free access and ecological design will be touched along whole study. (2 credits)

Architecture of Workplaces 1

BMEEPIPA401

The history of industrial architecture, the history of Hungarian industrial architecture. Load-bearing structures of halls and of multi-storey buildings. Size standardization. Constructions of space separation, facades, subsytems of space separation constructions (foundations, roof structures, intermediate floors, external wall systems, finishes. Characteristic architectural requirements, social facilities. Logistics: transport, storage. From location to layout, emplacement of industrial plants. Design methodology, re-use, reconstruction. Administrative workplaces. (2 credits)

Public Building Design 2

BMEEPKOA401

Target of the exercise, how to realize the general architectural design of a public building without loss of focus regarding the types collective characteristic. What does the studio hope to achieve? The architectural design of a smaller public building, with assistance from architect consultants. The student should learn the process from within regarding the architectural design process and the unusual stress placed upon development of space / manipulation of form whilst considering their approach to solving real environmental problems.
Communication of this architectural design is the key to making a successful presentation and your ideas should encompass dialogue with client (class tutors), relationship to the surrounding environment both built and natural, understanding of trends, financial awareness and understanding of intellectual property. It is expected that this work will involve a deeper research into project types and location - site visits, photographs, topographical mapping and land use mapping. (6 credits)

Architectural Informatics 3

BMEEPAGA501

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-throught pictures for architectural space analysis. (3 credits)

Contruction Management 1 Basis of Construction

BMEEPEKA501

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, realations. List of operations, survey for quantities, labour schedule, plant schedule, material schedule. (2 credits)

Building Service Engineering 1

BMEEPEGA501

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 appliancies: valves and taps, safety equipments. Fire protection networks. Domestic hot water demand and production. Domestic hot water networks in a building. Boiler types. Circulation. Appliancies: 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 appliancies: boilers, stoves, ovens. Categorisation and safety requirements of appliancies. 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. Fluo-

rescent 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. (2 credits)

Building Constructions 4

BMEEPESA501

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. (4 credits)

Design of Load-Bearing Structures

BMEEPSTA501

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. (6 credits)

History of Architecture 5 (19th century)

BMEEPETA501

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. (3 credits)

Drawing and Composition 5

BMEEPRAA501

In this semester students apply their previously acquired skills in the most complex architectural representation: in drawing affter 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. (2 credits)

Urban Design 1

BMEEPUIA501

The subject is the theoretical course of the fifth semester, with 2 hours lecture weekly. The task of the course 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 forms and basic sustainability aspects of urban design and planning. (2 credits)

Architecture of Workplaces 2

BMEEPIPA501

In an advanced society the world of labour is synonymous with order and being well-arranged. The aim of this one-semester course is to acquaint students with this world that not only suggests but also requires a lot of organizing and planning. The complexity of the topic manifests itself in the buildings designed to house certain activities with the attached architectural content such as space, stucture, and fabric as well as in the questions regarding the architectural formation of the surroundings by this world.
As Architecture of Workplaces 2. is the main designing course in the fifth semester, it has a significant position and task among the Bsc courses. It gives a chance to summarize the acquired architectural-technical knowledge at the midpoint of the education in the form of a last challenge right before the Global Design exam. This complex challenge foreshadows the desire of a real and complicated architectural thinking since it aims to create an equilibrium between the aesthetic and technical constituents of planning of a building.
This task of the semester is an organic part of the students' studies and is designed to be a realistic challenge for them regarding their age and level of professional knowledge. The task involves real architectural programs that contain building sites that are based on actual spots, thus the plans are ought to be highly commensurable resulting in a fair and matter-of-fact grading. (6 credits)

Economics 1. (Microeconomics)

BMEGT301004

Objectives and description of the course: The aim is to allow students to understand today's economic environment. After having finished the course, students should understand the key concepts of microeconomics (e.g. opportunity cost, supply and demand, market equilibrium, prices, cost functions, profit, competition and monopoly), master a basic set of tools of economic analysis and demonstrate the ability to apply them to simple practical problems. This course is

primarily designed as an introduction to microeconomic theory for undergraduate students pursuing a bachelor's degree in engineering. Both the course and the recommended textbook are accessible to students without a strong math background. Integral calculus is not used and the most important ideas are also demonstrated in graphs. (2 credits)

Construction Management.2 * (Building Project Management)

BMEEPEKT601

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 (2 credits)

Construction Management.2 ** (Building Project Management)

BMEEPEKK601

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 (4 credits)

Building Service Engineering 2

BMEEPEGA601

Calculation of heat loss of buildings. Energy consumption of a heated space. Introduction to fluid flow. Classification of Heating. Central heating. Elements of water heating system. Pipe distributing networks Emitters and surface heating. Controlling. Renewable energy sources for heating and producing domestic dot water. Introduction to psychometrics. Psychometric processes. Ventilation (Classification, natural ventilation and mechanical one, fundamental systems of air inlet and extract) Estimation of the necessary air volume. Air heating and cooling systems. Air conditioning. (2 credits)

Building Constructions 5

BMEEPESA602

This subject introduces the students to the precast reinforced concrete, steel and the timber load bearing construction systems of the big span halls and their special additional structures by a system- and performance-based approach. Details both of heavy elevation and roof slab structures made of prefabricated r.c. sandwich panels and lightweight external constructions are presented. Specific flooring, big size doors and partitions of industrial and commercial halls are shown.
It is also an objective to present the special construction rules and the service system aspects of the buildings of lightweight system and their particularities in the terms of building physics and fire protection.
Additional information is presented about multilevel precast r.c. skeleton frames, its typical technical details and the structural solutions of mass produced blocked and panel load bearing systems in case of residential buildings.
The main object of the course is to explain the constructions of one storey high big span halls. Students practice knowledge transmitted during the presentations and workshops in their semester projects on basis of the whole complexity of previous studies. (4 credits)

Preservation of Historic Monuments *

BMEEPETT611

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. (2 credits)

History of Achitecture 6 *

BMEEPETO601

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. (3 credits)

Drawing and Composition 6

BMEEPRAA601

The main topic in the syllabus in this semester is the intuitive representation of internal and external spaces: this subject aims at teaching students perspective representation at a higher level (applying 3-6 vanishing points). While drawing the streets and squares of the Buda Castle and the internal spaces of some atmospheric old public building sin Budapest (e.g. Saint Stephen Cathedral, Opera House, Hungarian National Museum) students investigate invisible geometrical and structural relations and improve their drawing skills (applying lead pencil, ink and crayon techniques). The objective is not to simply represent a naturalistic view as a camera, but to prepare a drawing of the architectural structure of a real space after grasping the gist of the compostion. (2 credits)

Department's Design 1 *

BMEEPUIT601

Department Design 1: A special urban design course conducted by the Department of Urban Planning and Design focusing mainly on urban public space design with the help of invited lecturers and landscape designer consultants.
The course is a partly theoretical and partly practical course where students get acquainted with special issues and problems of public space definition, public spaces usage and public space design. In the design assignment all students deal with one area, where starting from the analysis of a greater urban entity we narrow down the design problems to handling the publicly attainable spaces in between buildings. (3 credits)

Urban Design 2

BMEEPUIA601

Urban Design 2. is the main practical course of the Department of Urban Planning and Design.
The design task: After the analysis of a bigger urban environment, the task is to prepare an urban design concept for a bigger urban unit and later develop it into an urban scaled architectural design (development plan).
The site of the design task is the same settlement or urban environment for all students - this oncoming spring semester it is the riversides of the Danube all the way inside the city limits of Budapest - since the studio work is accompanied by common site visits, lectures and project presentations, where the possibility to learn from each other is also an important factor. (6 credits)

Special Load-Bearing Structures *

BMEEPSTT601

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 (4 credits)

History of Architecture Global* (basic)

BMEEPETO699

The complex exam (BMEEPETO699) is mandatory for students following the new education system. The complex exam comprehends the architecture of classical antique, the medieval, the Early Modern (renaissance and baroque) and the 19th century periods.
The main purpose of the exam is to summarise main tendencies in history of architecture that determined the forming of the architectural space in different historic periods. Exam topics are based on the History of Architecture 1 - 5 courses, a list is available in the department
(credits)

Reinforced Concrete Structures I.**

BMEEPSTK601

The most important methods of analysis and design of reinforced concrete (RC) structures are presented, together with their modelling, and the applied approximations. RC beams, columns, slabs, foundations and complete structures are considered. The understanding of the behaviour of RC structures is emphasized. (6 credits)

Economics 2. (Macroeconomics)

BMEGT301924

The aim is to allow students to understand today's economic environment. After having finished the course, students should understand the key concepts of macroeconomics (e.g. national income, unemployment, inflation, budget balance, exchange rates and the balance of payments), master a basic set of tools of economic analysis and demonstrate the ability to apply them to simple practical problems.
(2 credits)

Construction Management 3 (Planning of Construction Technology)

BMEEPEKA701

The goal of the subject is to present information on the planning of elementary construction technologies related to superstructures and finishing work.
The subject introduces how to apply recent innovations of building technologies during design and realisation. It gives a basic knowledge to evaluate construction options and make appropriate decisions about technology. There are case studies of building technologies used in construction of loadbearing structures, finishing and cladding works.
The practical part contains workshops on planning of construction technologies: connection of structures and technologies, volume calculation, resource estimation, scheduling antd construction site planning. (4 credits)

Building Constructions 6

BMEEPEST702

This subject introduces the students to the precast reinforced concrete, steel and the timber load bearing construction systems of the big span halls and their special additional structures by a system- and performance-based approach. Details both of heavy elevation and roof slab structures made of prefabricated r.c. sandwich panels and lightweight external constructions are presented. Specific flooring, big size doors and partitions of industrial and commercial halls are shown.
It is also an objective to present the special construction rules and the service system aspects of the buildings of lightweight system and their particularities in the terms of building physics and fire protection.
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edge transmitted during the presentations and workshops in their semester projects on basis of the whole complexity of previous studies. (4 credits)

History of Art 1 *

BMEEPETT721

Beginnings of the art: the pictures of the cavemen. – Ancient art of the East: Egypt. – Classical art of the Antiquity: Greek and Roman art. – Early Christian and Medieval art. – Renaissance and Baroque art. – The art at the age of Enlightenment: Gothic revival, Classical revival, Classicism. – Romanticism, Realism, Impressionism, Postimpressionism. (2 credits)

Drawing 7 *

BMEEPRAO702

Lecturing and practising the architecture oriented use of colours. Introduction to the theory of colours. Effect of colours on human beings. Investigation of relation between architectural forms and colours. Principles of colour design of the built environment. (2 credits)

Department's Design 2 *

BMEEPRAT701

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. (3 credits)

Department's design 3. *

BMEPExxT711

Department Design 3 for students is a one semester design course in English, organized by the Departments of Design in. The object of the course is to introduce a multilevel design method for students from general urban concept to the design of an architectural element. A comprehensive urban-architectural design based on the analysis of the urban tissue, cultural heritage, architectural details is going to give a common frame for individual architectural proposals. Teamwork and individual work will constantly implement and define each other. The semester will also give space to work on some contemporary questions in architecture, like the sustainability of an established urban environment, the relationship and social aspects of public and private spaces, the effects of landscape design and design of public spaces buildings. (8 credits)

Soil Mechanics **

BMEEOGTK701

Dr. Géza Petrasovics, Dr. József Farkas
Fundamentals of soil mechanics, including information indispensable to architectural practice such as the interaction between subsoil and building, the importance of testing the subsoil, foundation costs, essential soil properties, soil explorationmethods, the design of spread foundations, drainage (3 credits)

Building and Architectural Economics

BMEEPEKA801

Aim: investigate the economic side of a real estate development emphasizing the Social cost and benefit of development.

This module concentrates economical computation models, theories dealing with real estate valuation. There is a homework concerning with calculation, valuation of a real estate development. Successful submission is required for the module acceptance. Written exam as indicated, minimum pass grade required. Two corrections are allowed.
Following main topics are discussed: construction cost, estimates, time value of money, building life cycle cost , measuring the worth of real estate investments. (2 credits)

Facility Management *

BMEEPEK0633

The goal of the subject is to present theory of Facility Management, introduction of Cost Efficiency concepts. Based on case studies and several site visits on commercial properties, list of managerial tasks will be indentified and explained as registration, maintenance, crisis management and others. The course also will cover related subjects as Workspace Planning and CAFM (Computer Aided Facility Management). (2 credits)

History of Hungarian Achitecture 1. *

BMEEPETO801

The subject History of Architecture in Hungary I. aims to present and analyze the architecture of historic Hungary in European and domestic context from the history of Pannonia to the end of Baroque. The principle of the presentation is the chronological interdependence, however, particular attention is given to the main trends within the different periods as the main stylistic tendencies or external and internal factors that determine the historical and architectural context. A great emphasis is given to the exploration of the connections between the European and Hungarian history of architecture.
Lecture topics include: The beginnings of architecture in the Carpathian Basin. Roman architecture in Hungary. Early medieval architecture in Hungary - Christian Architecture between West and East. The flourishing Romanesque and the beginnings of Gothic Architecture. The rise of Gothic Architecture - architecture in towns and Gothic architecture of the orders. The beginning and the first period of the renaissance till the middle of th 16th century. The architecture of fortified palaces and fortifications. The renaissance architecture in Transylvania. The beginnings of the baroque in Western Hungary in the 17th century. The High Baroque in Hungary. (2 credits)

Drawing 8 *

BMEEPRAO801

Department Design 3 for students is a one semester design course in English, organized by the Departments of Design in. The object of the course is to introduce a multilevel design method for students from general urban concept to the design of an architectural element. A comprehensive urban-architectural design based on the analysis of the urban tissue, cultural heritage, architectural details is going to give a common frame for individual architectural proposals. Teamwork and individual work will constantly implement and define each other. The semester will also give space to work on some contemporary questions in architecture, like the sustainability of an established urban environment, the relationship and social aspects of public and private spaces, the effects of landscape design and design of public spaces buildings. (2 credits)

Urbanism *

BMEEPUI0805

The goal of the course is to get students acquainted with the multidisciplinary characteristics of Urban Design, Urban Planning and Urban Studies. The semester is divided into three 4 lecture long blocks dealing with: the issues of contemporary urbanity; related fields of science and planning tools in various field of the profession. In the series of lectures professors of the Department of Urban Planning and Design and some invited experts of various fields are presenting lectures on various topics. (2 credits)

Contemporary Architect Offices *

BMEEPIP0893

The aim of the course is representing Hungarian architect studios and giving useful information about working method of practising, creative teams. Lectures are performed by different practising architects, displaying their works by presentations or by visiting building projects. There is also a possibilty to make informal conversation with architects. The lectures are organized in auditoriums or at building sites. To obtain the final mark, each student has to write an own essay of a defined topic. (2 credits)

Residental Design and Contemporary Competitions*

BMEEPLA0897

Through the study of actual, current public commissions, this class provides a perspective on contemporary Hungarian residential building design praxis. Also, through past projects, it presents the main changes over recent years. The aim is to complement lectures in the Residential Building Design 1 course by acquainting students with as many concrete examples as possible – of contemporary Hungarian architectural creations and, primarily, of the bubbling, fertile, and often controversial world of public commissions. The highlighted standpoint and aim is for students to observe architectural praxis in today's Hungary, even if that is through more or less successful answers to questions that are posed. Another goal is for students to develop a routine of following public commissions, as well as an understanding of the procurement system, where to find such opportunities, and the rules and methodology regarding tenders. The hidden aim, by engaging with the given public tenders within the course, is to develop an active discourse among pupils on the basis of the evaluation and 'judgment' that follows. (2 credits)

Complex Design 1 *

BMEEPxxT811

Students must develop a plan to the level requested for permit or for a large-scale project, to the depth of an investment program plan. Part of the building must be developed to the construction plan level. Students must also prepare dossiers of structural calculation, work details, mechanical installations and the organisation of the construction site and consult with staff members of various departments for assistance. Students can select their project as well as their Studio Master. (10 credits)

Construction Management 4. ** (Controlling of Construction Technology)

BMEEPEKK801

Subject obligatory for BSc degree - The goal of the subject is to present information on the controlling process of the whole construction activity and the applied technologies involving the legal environment, the quality management, the quality survey, the work safety and the fire protection. Site and company visits are integrated in the theoretical lectures.
Main topics: Regulations concerning to the construction; Building permission/building consent; Quality in construcion, Fire protection; Dry construction systems; The work of the quality surveyor; Health and safety during building construction; Controlling activities in Construction Projects (4 credits)

Building Constructions 7 **

BMEEPESK801

The goal of the subject to introduce the building methods and the presentation of their validation possibilities. Today, the social, environmental and energy crisis in Central Europe as well is forcing to take into account the requirements of sustainability. The task of the subject the description of the sustainable construction methods, of the technical means, "gentle techniques" and presentation of specific structural systems having preserve and utilize of the existing values and environmentally conscious design and facility management of new buildings. The aim is to educate architects who are able to comprehensively, the ecological, social, value-defense, engineering, energy, economic, aesthetic considerations are also taken into account and finding and accepting reasonable compromise, adopting individual decisions. (4 credits)

Construction Law *

BMEEPEKO901*

The subject introduces the legal environment of construction projects: contracts, building permit, permission of use, etc. (2 credits)

Construction Law **

BMEEPEKB801 **

The subject introduces the legal environment of construction projects: contracts, building permit, permission of use, etc. (2 credits)

Design of Reinforced Concrete structures*

BMEEPST0655

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. (2 credits)

Drawing 9 *

BMEEPRAT901

The course provides a wide selection of representation techniques from traditional pencil drawing to collage, and from architectural geometry to computer aided visual rendering. The offered courses cover variable areas of basic architec-

tural graphics, from which students have the opportunity to choose. (2 credits)

Architectural Interiors*

BMEEPKO0905

The primary object of the Interior Architecture course is to examine the range of theories behind development of this spatial type, undertaken in the form of a lecture course and practical exams. Students will also be involved in a closed competition held in parallel with students on the Hungarian course. The lecture course is to be broken down into individual study areas which are to be introduced by visiting academics, architects and interior designers over a course of 12 - 13 weeks as follows:
- General concept of space.
- General concept of architectural space.
- Sacred / Communal / Personal space.
- Use of space / Conversion of space.
- Visual communication.
- Light / Sound / Surface.
- Application of subject / Form of subject.
- Design of University Spaces.

Successful candidates in the semester will be expected to attend lectures on a regular basis, complete written exams, practical tests and submit a valid entry to the closed competition. (2 credits)

The Form in Architecture *

BMEEPRA0404

The course introduces the basic theory of form to students of Architecture and Industrial Design. It gives a brief summary of the general concept of form and its bounding surfaces, while it classifies the main components of forms and their possible connections and relations to other forms. The course describes the detailed articulation of forms: textures, decorations and ornaments, extensions, perforations and coloration. During the semester, students will be assigned individual projects, each based on the thematic classification of forms. In these projects, students will demonstrate the implementation of the acquired theory, through a digital collection of examples from different parts of the world and various periods of history. Submitted projects will be uploaded to the department's database, thus, this continually developing comprehensive 'encyclopedia of forms' shall enrich the knowledge of future students as well.
(2 credits)

History of Theory of Architecture 1.*

BMEEPET0407

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. (2 credits)

Complex Design 2 *

BMEEPxxT911

Students must develop a plan to the level requested for permit or for a large-scale project, to the depth of an investment program plan. Part of the building must be developed to the construction plan level. Students must also prepare dossiers of structural calculation, work details, mechanical installations and the organisation of the construction site and consult with staff members of various departments for assistance. Students can select their project as well as their Studio Master. (10 credits)

Architecture Design *

BMEEPETO921

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. (2 credits)

Contemporary Hungarian Architecture 2. *

BMEEPETO901

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. (2 credits)

2017/2018 ACADEMIC CALENDAR

Fall Semester: All accepted Preparatory Beginners	
Registration in Students' Office, Bldg. R 1. (**after payment** of tuition fees)	**28 Aug – 8 Sept 2017**
Appointments for Obligatory Medical Check-up (Necessary for Health Insurance).	28 Aug – 8 Sept
Preparatory Classes (Math, Physics) **for Placement Test**	**23 – 25 August**
Placement Tests: Math (28.08.), Physics (29.08.) and English Language (30.08.)	**28 – 30 August**
Orientation Program Newly enrolled regular and Exchange Students	**4 – 8 September**
Placement Test Results Posted Outside Student's Office	**1 Sept at 12 am**
Presentation of Schedules for Freshmen in Bldg. R 1. **Student's Office**	1 Sept at 12 am – 1 pm
First day of classes	**11 Sept** at **8:15 am** (Monday)
Opening ceremony	**28 Sept (Thursday)**
Last Day of Classes	**8 Dec (Friday)**
Examinations in fall semester 2016/2017	18 Dec 2017 - 22 Jan 2018
Winter Holidays	**23 Dec 2017 - 2 Jan 2018**

Fall Semester: BSc/MSc Students	
Registration in Student's Office	**21 Aug – 1 Sept 2017**
First Day of Classes	4 Sept 2017 (Monday)
Last Day of Classes	8 Dec 2017 (Friday)
Delayed submission	11 Dec 2017 – 15 Dec 2017
Examination Period (Check with your Faculty!)	**18 Dec 2017 – 22 Jan 2018**
Winter Holidays for All Students	**23 Dec 2017 – 2 Jan 2018**
Last Day of Final Exams	**26 Jan 2018**

Spring Semester: All Students	
Registration in Students' Office, Bldg. R 1.	**31 Jan - 2 Feb 2018**
Orientation program Newly enrolled regular and Exchange Students	31 Jan - 2 Feb 2018
First Day of Classes	**5 Feb 2018 (Monday)**
Last Day of Classes	**18 May 2018 (Friday)**
Delayed submission	22 May – 28 May 2018
Examination Period (Check with your Faculty!)	**29 May – 25 June 2018**
Last Day of Final Exams	**2 July 2018**

Days off for All Students

Sports day	20 Sept 2017 (Wednesday)	National Day	15 Mar 2018 (Thursday)
National Day	23 Oct 2017 (Monday)	Easter	30 Mar - 2 April 2018
All Saints' Day	1 Nov 2017 (Wednesday)	Spring Holiday	3 - 6 April 2018
Students' Sci. Con.	16 Nov 2017 (Thursday)	Labour Day	1 May 2018 (Tuesday)
Open Day	24 Nov 2017 (Friday)	Whit Monday	21 May 2018 (Monday)

Administration Block A
Fluid Mechanics Building Ae
Chemistry Building Ch
Mechanical Engineering Building D
Building Construction Laboratory El
Physics Building F
Production Engineering Building G
Informatics Buildings I, Q
Vehicle Engineering Building J
Central Building K
Central Library Kö
Hydraulic Machinery Laboratory L
Mechanics Building Mm/Mg
Mechanical Technology Building Mt
Classrooms R, T, H, E
Electrical Engineering
and Informatics
Buildings St, V1, V2
Nuclear Training Reactor TR

Office of
International Education,
Central Academic Office: R

Budapest University of Technology and Economics

BME