BULLETIN

Budapest University of Technology and Economics

2012–2013

An ECTS Guide

MŰEGYETEM 1782

Engineering Programs in English
www.bme.hu
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Dear Student,

This Bulletin will introduce you to the Budapest University of Technology and Economics, the range of educational opportunities it offers, its faculties and their programs, its policies and philosophy, and its services and traditions. We hope the contents will help you make an informed decision about your studies and future career.

The Budapest University of Technology and Economics can trace its evolution through several academic institutions, dating back to 1782. Our present activity is based not only on our responsiveness to the needs of a continuously changing world, but also on more than 225 years of experience and tradition that provides a guaranteed basis for high-quality engineering studies.

Our university holds an international reputation for excellence in engineering education. It attracts professors and students from all over the world. We are proud of our international professors and our international students.

Hungary is a member of the European Union. It is a good opportunity to highlight our cultural heritage, including scientists, artists, other creators, enriching Europe's and the World's progress and values. Our former and present professors or even graduates have also had strong contributions to those results.

Consequently, international students of BME can benefit from their studies in Hungary in a particularly precious way. Parallel to their professional studies in fields of engineering, business and management, cultural courses will increase the excitement of study abroad.

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 only for one semester, this bulletin will also help you choose from different semester programs.

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

Dr. Péter Moson

Vice Rector for International Affairs
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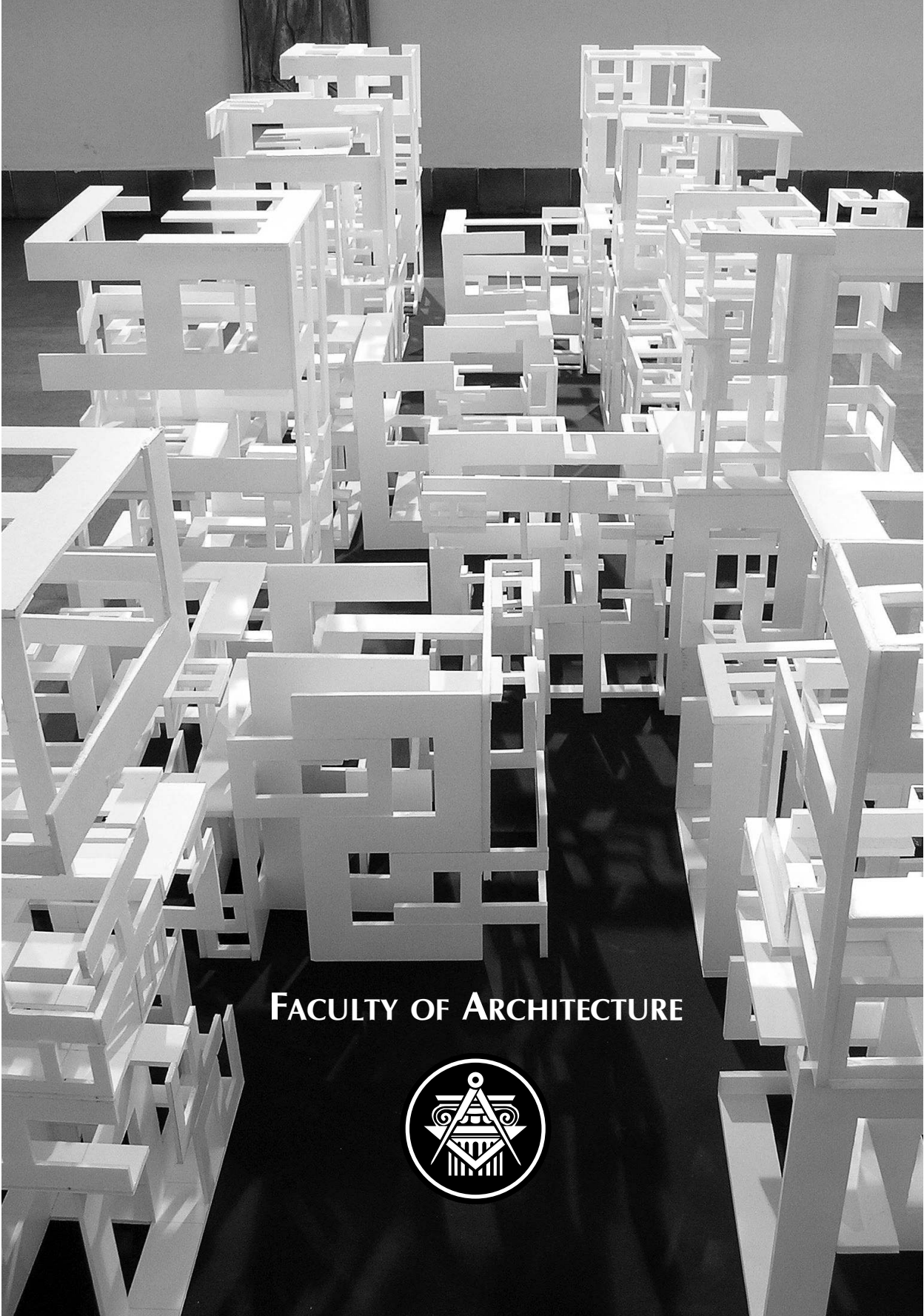Education & Media Services Center
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FACULTY OF ARCHITECTURE

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 M.Sc. 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: B.Sc./M.Sc. 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 world-wide to study in Budapest within the the framework of the International Student Exchange Program and othera-greements.

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 systemworld-wise and, eventually, mutual international recognition of degrees.

Master's Program

Students who have earned B.Sc. 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

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Faculty of Architecture

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Course Director: Dr. Gábor Nemes
General Course: Ms. Margit Nagy
B.Sc./ M.Sc.: Ms. Enikő Porpáczi

General (Preparatory) Courses in Architecture

Subject			hrs/week		Requisites
Name	Code	Credits	1	2	
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 1[a]
Computer Literacy 2	BMEEPAGG201	-		2	Computer Literacy 1[a]
Geometrical Constructions 2	BMEEPAGG211	-		3	Geometrical Constructions 1[a]
Freehand Drawing 2	BMEEPRAG201	-		6	Freehand Drawing 1[a]
Fundamental of Structures	BMEEPSTG201	-		4	
Basic Tools of Building Constructions	BMEEPESG201	-		2	
Design Skills 2	BMEEPRAG211	-		2	Freehand Drawing 1[a]
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	BMEGT63A201[a]

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 General Course in Architecture.

Curriculum of B.Sc./M.Sc. Subjects

Subject			working hours / week										Requisites
Name	Code	Credits	1	2	3	4	5	6	7	8	9	10	
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 BMEEPSTA101
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	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	BMEEPK0A301	2			2/0/0e								BMEEPLAA201 BMEEPLAA202
Residential Building Design 2	BMEEPLAA301	6			0/6/0p								BMEEPLAA202 BMEEPAGA102 (signature) BMEEPLAA201
Building Constructions 2	BMEEPESA301	4			2/2/0e								BMEEPSTA101 BMEEPAGA102 BMEEPESA101
Sociology for Architects	BMEGT43A044	2				2/0/0e							-
Architectural Inf. 2 - Digital Representation	BMEEPAGA401	3				1/2/0p							BMEEPAGA202 BMEEPAGA301

Curriculum of B.Sc./M.Sc. Subjects (contd.)

Subject			working hours / week										Requisites
Name	Code	Credits	1	2	3	4	5	6	7	8	9	10	
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 BMEEPSTA201 BMEEPSTA301
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 BMEEPETA301 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												BMEEPESA401a BMEEPESA501a
Design of Load-Bearing Structures	BMEEPSTA501	6					4/2/0e						BMEEPAGA202 BMEEPSTA499
History of Architeture 5 (19th century)	BMEEPETA501	3					2/1/0e						BMEEPETA401 BMEEPETA101
Drawing 5	BMEEPRAA501	2					0/2/0p						BMEEPRAA401
Urban Design 1	BMEEPUIA501	2					2/0/0e						BMEEPIPA401 BMEEPKOA401
Architecture of Workplaces 2	BMEEPIPA501	6					0/6/0p						BMEEPKOA401 BMEEPIPA401
Design Global Basic	BMEEPKOA599												BMEEPIPA501 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	BMEEPESA601	4						2/2/0e					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												BMEEPETA501
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	BMEEPEST701	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
Department's Design 2 *	BMEEPRAT701	3							0/3/0p				BMEEPKOA599
Department design 3. Small Complex Design*	BMEEPExxT711	8							0/8/0p				BMEEPKOA599 BMEEPUIA601
Global In Structures *	BMEEPSTT799												BMEEPSTT601a
History of Hungarian Architecture **	BMEEPETB701	2							2/0/0p				BMEEPETA501
B.Sc. Complex (Small Complex) **	BMEEPxxB711	3							0/3/0p				BMEEPKOA599 BMEEPUIA601
Soil Mechanics **	BMEEOGTK701	3							2/1/0e				BMEPESA301

a) can be taken parallelly in the same semester
*: Obligatory for M.Sc. / 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

Curriculum of B.Sc./M.Sc. Subjects

Subject			working hours / week										Requisites
Name	Code	Credits	1	2	3	4	5	6	7	8	9	10	
B.Sc. Diploma Studio 1 **	BMEEPxxB721	3							0/3/0p				BMEGT43A044 BMEEPAGA501 BMEEPEGA501 BMEGT301004 BMEEOMK601 BMEEOEMK601 BMEEPAGA601 BMEEPSTK601 BMEEPRAA601
Building and Architectural Economics	BMEEPEKA801	2							2/0/0p				-
Facility Management *	BMEEPEK0633	2							2/060e				
History of Hungarian Achitecture 1. *	BMEEPETO801	2							2/0/0p				BMEEPKOA599
Drawing 8 *	BMEEPRAO801	2							0/2/0p				BMEEPRAA501
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
Building Construction Global *	BMEEPEST899												BMEEPESA599 BMEEPESA601[a] BMEEPEST701[a]
Construction Management 4. ** (Controlling of Construction technology)	BMEEPEKK801	4							2/2/0e				BMEEPEKA501 BMEEPESA501 BMEEPESA501
Building Constructions 7 **	BMEEPESK801	4							2/2/0e				BMEEPESA601 BMEEPESA599
B.Sc. Diploma 2**	BMEEPxxBD01	12							0/12/0p				BMEGT301924 BMEEOGTK701 BMEEPEKA701 BMEEPEST701 BMEEPSTB701 BMEEPETB701 BMEEPxxB711 BMEEPxxP721 BMEEPEKA801[a] BMEEPEKB801[a] or EPEKO901[a] BMEEPEKK801[a] BMEEPESK801[a]
Construction Law *, **	BMEEPEKO901* BMEEPEKB801 **	2 2							2/0/0p 2/0/0p				-
Design of Reinforced Concrete structures*	BMEEPST0655	2								2/0/0e			-
Drawing 9 *	BMEEPRAT901	2								0/2/0p			BMEEPKOA599
Architecture of Interior spaces*	BMEEPKO0905	2								0/2/0p			BMEEPKOA401
Architectural Form *	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
Theory of Design *	BMEEPIPO901	2								2/0/0e			BMEEPKOA599
History of Hungarian Architecture 2. *	BMEEPETO901	2								2/0/0p			BMEEPETO801
History of Architecture Global *	BMEEPETT999													BMEEPETO601 BMEEPETO801
Diploma project studio * Min 270 credits all subjects and globals	BMEEPxxTD01	30									0/30/0e		

*: Obligatory for M.Sc. / 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

Faculty of Chemical Technology and Biotechnology

The education of chemical engineers and chemists has a long-standing tradition in Hungary. Hungary's earliest chemistry department was established in 1763 at the Selmecbánya Mining School, the first school to offer practical instruction in the chemical laboratory. In 1769, a common department for chemistry and botany was founded at the University of Nagyszombat, which was resettled to Buda in 1777 and later to Pest. In 1846, the Department of General and Technical Chemistry was founded at Joseph II Industrial School, one of the Budapest University of Technology and Economics's predecessor institutions. Education of chemical engineers, separate from that of mechanical and civil engineers, reaches back to the 1863/64 academic year.

Royal Joseph Polytechnic became a technical university in 1871. The academic freedom introduced by this university-level status allowed students to freely select the subjects they wished to study. However, the need for an interrelated, logical sequence of subjects soon became evident, so in 1892 a compulsory curriculum and timetable was introduced. From the foundation of the Faculty until 1948, only a four-year-term of studies, without specialisations, was offered. Following the educational reforms of 1948, the departments of Inorganic Chemical Technology, Organic Chemical Technology, and Agricultural and Food Chemistry were established. The Inorganic Chemical Technology Department is no longer a part of the Faculty because in 1952 its tasks were taken over by the University of Chemical Industry in Veszprém. Further reforms in the 1960s extended chemical engineering studies to the M.Sc. level and introduced the range of specialised studies identified below. A Ph.D. program has also been established. Studies in English at the Faculty of Chemical Engineering began in the 1985/86 academic year.

Students in the BSc program receive a thorough introduction to areas basic to chemical engineering before they begin their specialisations in the fifth semester. Courses of the following branches are available to students depending on the number of applicants (at least 3 applicants)

both at the B.Sc. (7 semesters) and M.Sc.
(4 semesters) levels:
- Analytical and Structural Chemistry
- Chemical and Process Engineering
- Industrial Pharmaceutics
- Polymer Technology
- Textile Technology

The M.Sc. program will start in February 2013.

The Faculty of Chemical Technology and Biotechnology aims for its students to acquire a profound theoretical knowledge in mathematics, physics and physical chemistry. It also aims to have its students experience, during their studies, all the types of tasks that chemical engineers encounter in their practical everyday work. Students will acquire up-to-date laboratory skills, get acquainted with the machines and apparati used in the chemical industry, know the principles needed for their optimal operation, and develop expertise in a more specific technology within the chemical, food and light industries.

Graduates of this Faculty will be versed in:
- The operations and personnel involved in chemical processes on an industrial scale,
- The development of the technology and products of industrial chemical processes,
- The design of industrial chemical processes,
- How a chemical product or application is introduced into the national economy, and
- The elaboration of new chemical processes, operations and technologies.

A three-year Ph.D. program is also available in all majors offered by the Faculty.

Departments

Department of Inorganic and Analytical Chemistry
Department of Physical Chemistry and Materials Science
Department of Organic Chemistry and Technology
Department of Chemical and Environmental Process Engineering
Department of Applied Biotechnology and Food Science

Budapest University of Technology and Economics
Faculty of Chemical Technology and
Biotechnology

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Phone: (+36-1) 463-4140
Fax: (+36-1) 463-2550

Dean of the Faculty: Dr. György Pokol
Course Director: Dr. Zoltán Hell
Program Co-ordinator: Ms. Enikő Porpáczi
E-mail: porpaczi.eniko@kth.bme.hu

Curriculum of B.Sc. Subjects
General Subjects

Name	Code	Credits	1	2	3	4	5	6	7	8
Compulsory English I.	BMEGT63A301	2	0/4/0p							
Compulsory English II.	BMEGT63A302	2		0/4/0p						
English for Engineers	BMEGT63A051	2			0/2/0p					
Communication Skills - English OR	BMEGT63A061	2				0/2/0p				
Manager Communication -English OR	BMEGT63A081	2				0/2/0p				
Intercultural Communication - English	BMEGT63A091	2				0/2/0p				
Mathematics A1a - Calculus	BMETE90AX00	6	4/2/0/e							
General Chemistry	BMEVESAA101	5	4/0/0e							
General Chemistry Calculations	BMEVESAA104	4	0/3/0p							
General Chemistry Laboratory Practice	BMEVESAA209	5	0/0/6p							
Computing	BMEVESAA103	2	0/2/0p							
Mechanical Operations in Chemical Industry	BMEGEVGAV03	2		2/0/0e						
Mechanical Operations in Ch. Industry Pract.	BMEGEVGAV04	3		0/1/2p						
Micro- and Macroeconomics	BMEGT30A001	4	4/0/0e							
Mathematics A2c	BMETE90AX17	6		4/2/0e						
Mathematics A3 for ch. eng. and bioengineers	BMETE90AX18	4			2/2/0e					
Physics I Mechanics	BMETE14AX15	4		2/2/0e						
Inorganic Chemistry	BMEVESAA208	3		3/0/0e						
Inorganic Chemistry Laboratory Practice	BMEVESAA301	3			0/0/4p					
Organic Chemistry I	BMEVESZA301	5		3/2/0e						
Chemical Technology	BMEVEKFA203	3	2/0/0p							
Physics I Electrodynamics	BMETE14AX04	2		2/0/0e						
Physics Laboratory	BMETE14AX05	2		0/0/3p						
Organic Chemistry II	BMEVESZA401	4			3/0/0e					
Analytical Chemistry I	BMEVESAA302	5		4/0/0p						
Physical Chemistry I	BMEVEFKA304	5	3/1/0e							
Polymers	BMEVEFAA306	5		2/0/2p						
Organic Synthesis Laboratory Practice	BMEVESZA402	4			0/0/5p					
Analytical Chemistry II	BMEVESAA403	4			1/0/4p					
Physical Chemistry II	BMEVEFAA405	4		2/1/0e						
Medicines	BMEVESTA403	3			2/0/0p					
Colloid Chemical Principles of Nanotechn.	BMEVEFAA409	3			3/0/0p					
Environmental Chemistry and Technology	BMEVEKFA403	4						3/0/0e		
Organic Chemical Technology	BMEVESTA411	3			2/0/0e					
Organic Chemical Technology Labo. Practice	BMEVESZA412	3			0/0/4p					
Chemical Unit Operations I	BMEVEKFA410	6			3/2/0e					
Business Law	BMEGT55A001	2				2/0/0p				
Design of Experiments	BMEVEVMA606	3				2/1/1p				
Hydrocarbon Techology	BMEVEKFA506	3				2/0/1e				
Biochemistry	BMEVEBEA301	4				3/0/0e				
Physical Chemistry Laboratory Practice	BMEVEFAA506	3				0/0/4p				
Chemical Process Control	BMEVEVMA504	5					2/1/1p			
Chemical Unit Operations II	BMEVEKFA512	6				2/1/4e				
Management and Business Economics	BMEGT20A001	4					4/0/0p			
Industrial Safety	BMEVESZA101	2	2/0/0p							
Quality Management	BMEVEKFA615	4						3/0/0e		
Chemical Unit Operations Laboratory Pract.	BMEVEKFA613	3					0/0/4p			
Electives (humanities)		8					4/0/0e			
Project work	BMEVExxA777	3						0/1/0p		
Branch		25					9 cr	8 cr	6 cr	
Thesis	BMEVExxA999	15							0/0/14p	
Summer Practice	BMEVExxA888	0						6 weeks/s		
Elective		10	6/0/0					2/0/0	2/0/0	

Curriculum of B.Sc. Branch Subjects

Name	Code	Credits	1	2	3	4	5	6	7	8
Branch of Analytical and Structural Chemistry										
Analytical and Structure Determination Lab.	BMEVESAA604	5						1/0/4p		
Elemental Analysis	BMEVEAAA507	3					2/0/0e			
Chemical and Biosensors	BMEVEAAA708	3					2/0/0e			
Chromatography	BMEVEAAA611	3					2/0/0e			
Organic Structure Analysis	BMEVESAA512	3					3/0/0p			
Structural Chemistry	BMEVEFKA708	4							3/0/0e	
Organic Chemistry III	BMEVESKA504	2						2/0/0e		
Branch of Chemical and Process Engineering										
Hydrocarbon Technology and Catalysis	BMEVEKFA503	5					2/0/3p			
Process Engineering	BMEVEVMA605	5						3/0/2e		
Environmental Benign Chemical Process	BMEVEVMA607	4						3/0/0e		
Computer Process Control	BMEVEKFA709	3							2/0/1e	
Chemical Production Control	BMEVEKTA707	3							2/0/1p	
Radiochemistry and Nuclear Energetics	BMEVEKFA502	3					2/0/1p			
Branch of Industrial Pharmaceutics										
Organic Structure Analysis	BMEVESAA512	3					3/0/0p			
Organic Chemistry III	BMEVESKA504	2						2/0/0e		
Organic Chemistry Laboratory Practice II	BMEVESKA605	5					0/0/6p			
Pharmaceutical technology	BMEVESTA704	2							2/0/0e	
Unit Processes in Ind. Drug Synth. Lab. Pract.	BMEVESTA705	4							0/0/5p	
Unit Processes in Ind. Drug Synthesis	BMEVESTA606	2						2/0/0e		
Technology of Pharmaceutical Materials	BMEVESTA607	3						2/0/1e		
Unit Processes of Organic Chemistry	BMEVESTA508	2					2/0/0e			
Branch of Material Science										
Physical Chemistry of Surfaces	BMEVEFKA603	3						2/0/0e		
Experimental Methods in Materials Science	BMEVEFAA708	4					3/0/0e			
Methods in Material Science Lab. Pract.	BMEVEMGA502	3					0/0/4p			
Material Science Laboratory Practice	BMEVEMGA603	3						0/0/4p		
Polymer Physics	BMEVEMGA511	3					2/0/0e			
Metals and Metal Matrix Composites	BMEVEFAA602	2						2/0/0e		
Nonkonventional Materials	BMEVEFKU415	3							2/0/1p	
Modern Engineering Ceramics	BMEVEFAA602	2						2/0/0e		
Branch of Polymer Technology										
Experimental Methods in Materials Science	BMEVEFAA708	4					3/0/0p			
Machines and Tools for Polymer Processing	BMEVEFAA705	4							2/0/1e	
Polymer Processing	BMEVEMGA608	7						4/0/5e		
Polymer Physics Laboratory Practice	BMEVEMGA509	3					0/0/4p			
Polymer Additives	BMEVEMGA610	2						2/0/0e		
Polymer Physics	BMEVEMGA511	3					2/0/0e			
Branch of Textile Technology										
Experimental Methods in Material Science	BMEVEFAA708	4					3/0/0e			
Fiber Forming Polymers	BMEVEMGA512	2					2/0/0p			
Chemistry of Dyes and Surfactants	BMEVESTA510	2					2/0/0p			
Colorimetry, Color Measurement	BMEVEMGA515	2					2/0/0p			
Chemical Technology of Textiles I	BMEVEMGA617	7						3/0/4e		
Chemical Technology of Textiles II	BMEVEFAA718	4							2/0/2p	
Textile Mechanical Technology	BMEVEMGA619	2						2/0/0p		
Chemistry and Technology of Macromolecules	BMEVEMGA504							2/0/0p		

Curriculum of M.Sc. Subjects

Subject			hours/week			
Name	Code	Credits	1	2	3	4
General Subjects						
Mathematics M1c	BMETE90MX44	3	2/1/0e			
Complex and Organometallic Chemistry	BMEVESAM101	2	2/0/0p			
Organic Chemistry	BMEVESZM101	4	3/0/0e			
Analytical Chemistry	BMEVESAM102	4	2/0/2p			
Materials science: traditional structural materials and polymers	BMEVEFAM101	4	2/0/2e			
Chemical process design and control	BMEVEKFM101	4	2/0/2p			
Economic Analysis of Technological Processes	BMEGT30MS07	2	2/0/0e			
Project Work I	BMEVExxM100	3	0/0/4p			
Design of Experiments	BMEVEKFM203	3		2/1/0p		
Modern Physics for Chemical Engineers	BMETE14MX00	3		3/0/0e		
Physical Chemistry and Structural Chemistry	BMEVEFAM201	5		5/0/0e		
Technologies in Organic Chemical Industry	BMEVESZM201	5		2/0/2p		
Environmentally Benign and Catalytic Proc.	BMEVEKMF204	5		3/0/2e		
Project Work II	BMEVExxM200	3		0/0/4p		
Biology, Biotechnology	BMEVEMBM301	3			2/0/0p	
Computational Chemistry	BMEVESAM301	3			2/0/1e	
Social and Visual Communication	BMEGT43MS07	2			2/0/0p	
Thesis I	BMEVExxM300	15			0/0/11p	
Summer Practice	BMEVExxM888					
Branch-depend. Eco. and Human Know. Subj.		4				
Elective Subject		6				
Thesis II	BMEVExxM400	15				0/0/11p
Branch		20				
M.Sc. Total:		120				
Branch of Analytical and Structural Chemistry						
Analytical Chemistry III	BMEVESAM201	5	1/0/4p			
Sample preparation and sampling	BMEVESAM204	3	2/0/0p			
Structure Elucidation of Organic Compounds II.	BMEVESAM303	5	3/1/0e			
Modern Separation Techniques	BMEVESAM106	4	2/0/2e			
Bioanalysis and Study of Metabolites	BMEVESAM304	3		2/0/0e		
Technology Management	BMEGT20M005,	2				2/0/0e
Intellectual Property (IP) Management	BMEVEFAM103	2	2/0/0e			
Quality Control (Quality Assurance)	BMEVESAM206	2				2/0/0p
Branch of Chemical and Process Engineering						
Process Engineering	BMEVEKFM205	4	2/0/1e			
Energy prod. with conv. and novel methods	BMEVEKFM302	4		2/0/1p		
Modern Separation Technologies	BMEVEKFM104	3	2/0/1p			
Industrial Organic Chemistry	BMEVESZM204	3		0/2/1p		
Petrochemistry	BMEVEKFM402	6				2/0/3e
Technology Management	BMEGT20M005,	2		2/0/0e		
Control and Manag. Meth.in the Chem. Industry	BMEVEKFM303	2		2/0/0e		
Quality Control (Quality Assurance)	BMEVESAM206	2				2/0/0p
Branch of Industrial Pharmaceutics						
Pesticides	BMEVESZM403	3				2/0/0e
Pharmaceutical Technology II	BMEVESZM302	4		2/1/0e		
Formulation of Biologically Active Materials	BMEVESZM304	4		0/2/2e		
Industrial Organic Chemistry	BMEVESZM102	3	2/0/0p			
Medicinal Chemistry	BMEVESZM404	6				3/2/0e
Technology Management	BMEGT20M005,	2		2/0/0e		
Patents in Pharmaceutical Industry	BMEVESZM401	2				2/0/0e
Quality Assurance of Drug Production	BMEVESZM402	2				2/0/0e
Branch of Polymer Technology						
Application of Plastics	BMEVEFAM403	5				3/0/1e
Machines and Technologies in Polymer Proc.	BMEVEFAM305	5			3/0/1p	
Polymer Physics	BMEVEFAM202	4		3/0/0e		
Polyreactions	BMEVEFAM102	3	2/0/0p			
Composites	BMEVEFAM301	3			2/0/0e	
Intellectual Property (IP) Management	BMEVEFAM103	2	2/0/0e			
Quality Control (Quality Assurance)	BMEVESAM206	2				2/0/0p
Branch of Textile Technology						
Polyreactions	BMEVEFAM102	3	2/0/0p			
Composites	BMEVEFAM301	3			2/0/0e	
New Application and Technologies of Fibres	BMEVEFAM302	5			3/0/1e	
Basic Processes in Textile Chemical Technology	BMEVEFAM401	5				3/0/1p
Polymer Physics	BMEVEFAM202	4		3/0/0e		
Technology Management	BMEGT20M005,	2		2/0/0e		
Intellectual Property (IP) Management	BMEVEFAM103	2	2/0/0e			
Quality Control (Quality Assurance)	BMEVESAM206	2				2/0/0p

ENVIRONMENTAL ENGINEERING

A M.Sc. degree granted by the Budapest University of Technology and Economics.
The program will start in February 2013 but only if it will be at least 6 applicants.

One of the biggest and most reputed institutions of this kind in Europe, the Budapest University of Technology and Economics has educated generations of engineers since its foundation in 1782.

Its eight faculties of different engineering disciplines, sciences, economics and humanities actively participate in environmental education granting among others postgraduate degrees from 1974 onwards.

The aim of the course is to provide:

- Knowledge to identify and describe negative environmental and ecological changes and provide technological solution for the remediation
- Give solutions to manage natural resources and prevent pollution to help sustainable industrial and social development.

Due to a well selected set of fundamental and general science subjects a wide variety of B.Sc. engineering and science degrees can serve as prerequisite for the admission to the M.Sc. course.

The Budapest University of Technology and Economics disposes of highly developed training facilities: laboratories, pilot plants, computer network and a wide system of international relations.

During the (at least) 4 semesters of the education period, actually an MSc degree is to be granted in the specialisation branch of:

- Environmental technology

with special focus on applied environmental science and technology aspects.

The curricula are conceived carefully to meet the needs and challenges of the actual career opportunities in both developed and developing countries.

The curriculum (see tables) is of modular structure consisting of the following modules:

- science; economics and humanities 30%
- specialised core subjects 59%
- differentiated professional knowledge 11%

The program is organised in the credit system (of English and US traditions) providing a relatively high degree of free subject selection.

The condition of obtaining an MSc degree is the fulfilment of the total of 120 credit points including:

- comprehensive final exams and
- defence of an individual MSc thesis

Budapest University of Technology and Economics
Faculty of Chemical Technology and
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Fax: (+36-1) 463-2550   *E-mail: porpaczi.eniko@kth.bme.hu*

Curriculum of M.Sc. Subjects

Subject			working hours / week				Requisites
Name	Code	Credits	1	2	3	4	
Probability Theory and Statistics M1		4	2/2/0				
Physics K3M		4	3/0/0				
Applied Chemistry		4	2/2/0				
Environmental Microbiology and Biotechnology		3	2/0/0				
Engineering Ecology		3	2/0/0				
Economics		2	2/0/0				
Environmental Law		2	2/0/0				
Communication		2	2/0/0				
Risk Assessment, Recovery of Industrial and Environm. Disasters		3	2/0/0				
Transport Equations M11		4		3/1/0			
Technology Management		2		2/0/0			
Environmental Management		2		2/0/0			
Environmental Analytical Chemistry		3		2/0/1			
Design of Experiment		3		2/1/0			
Green Chemistry and Catalysis		3		2/0/0			
Biochemical Engineering Processes and Unit Operations		3		2/0/2			
Sustainable Environmental and Natural Resource Management		3		2/0/0			
Numerical Modelling of Fluid Flow in Environmental Technology	3				1/1/0		
Case Studies in Environmental Impact Assessment and Auditing		3			1/1/0		
Modelling of Environmental Systems		3			2/1/0		
Modern Environment-friendly Transportation Systems		3				2/0/0	
Environmental Toxicology		3				2/0/1	
Compulsory optional subjects		6			6/0/0		
Thesis Project		25				0/0/25	

Curriculum of M.Sc. Branch Subjects

Subject		
Name	Code	Credits
Branch of Environmental Management		
Local Sustainability Programs		3
Environmental Marketing		3
Waste Management		3
Environment Management Systems		3
Environmental Performance Evaluation		3
Environmental Strategic Planning		3
Environmental Valuation and Risk Assessment		3
Spatial Development		3
Branch of Environmental Technology		
Basics of Control Engineering		3
Sustainable Environmental Processes		3
Renewable Energy Sources		3
Environmental Process Instrumentation and Control		
Surface water and Groundwater Monitoring		3
Technical Acoustic and Noise Control		3
Waste Management Techniques		3
Case Studies in Air Pollution Control		3
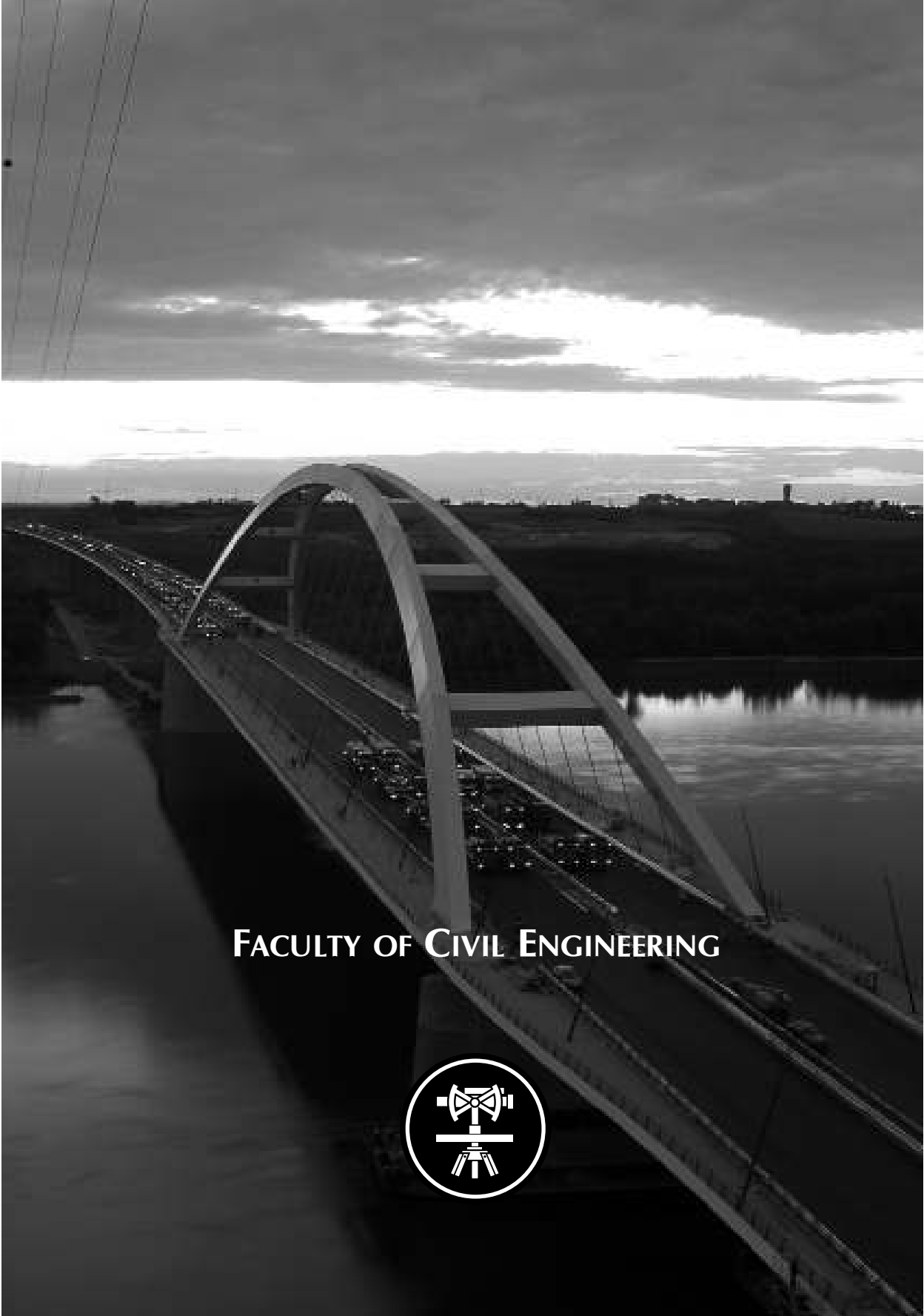
FACULTY OF CIVIL ENGINEERING
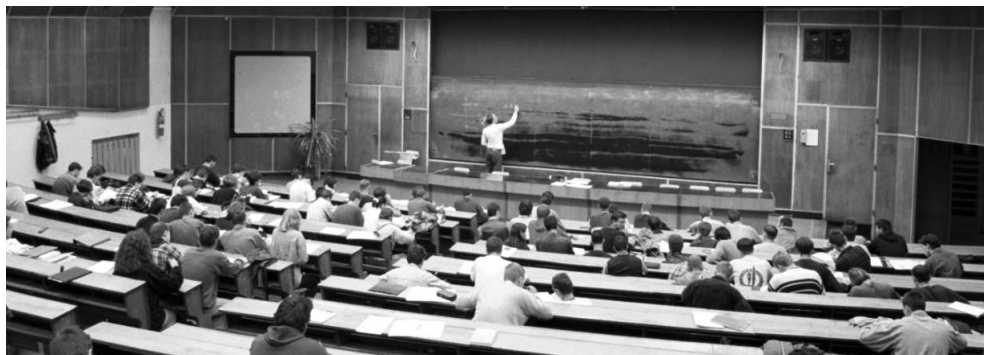
The Faculty of Civil Engineering is the oldest Faculty of the Budapest University of Technology and Economics and can trace its history back to the University's predecessor, the Institutum Geometricum, founded by Emperor Joseph II in 1782. In the past 229 years, thousands of engineers have graduated from this Faculty to work worldwide as educators, international researchers and engineering project managers.

The most essential service of the faculty - education linked closely to research and engineering work - is reflected in the scientific activities of nearly 140 engineers in 10 departments. They have contributed significantly to the scientific solution of diverse engineering problems. Out of the approximately 2300 students, who study at this Faculty, about 60 students from abroad participate in the English language program.

The engineering program in English leads to a B.Sc. degree in four years, in the Branch of Structural Engineering. The branch offers specific educational objectives: Graduates from the Branch of Structural Engineering create engineering structures by utilizing and designing structural materials. They are expected to design, construct and organize the investments of mechanically, structurally and technologically complex structures in cooperation with architects and transport and hydraulics specialists. Future structural engineers who graduate from this branch will be able to design and construct, among other things, flyovers and underground passages for traffic networks; power stations, cooling towers, craneways, transmission line structures and TV towers; halls, storehouses, industrial plants, and multi-storey buildings as well as hydraulic engineering and water supply structures.

A new M.Sc. course in Computational Structural Engineering is launched from September 2012. This M.Sc. course is designed for those who are interested in modern computer techniques of structural analysis, including the theoretical background of the methods. This course might be especially useful for those who are interested in research and consider continuing doctoral studies.

Departments

Geodesy and Surveying	Architectural Engineering
Construction Materials and Engineering Geology	Structural Mechanics
Photogrammetry and Geoinformatics	Highway and Railway Engineering
Geotechnics	Hydraulic and Water Resources Engineering
Structural Engineering	Sanitary and Environmental Engineering

Budapest University of Technology and Economics
Faculty of Civil Engineering
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Building R, 1ˢᵗ Floor, Room No. 104.   *Vice-Dean of the Faculty: Dr. Sándor Ádány*
Mailing Address: Műegyetem rkp. 7-9.   *Program Co-ordinator: Ms. Enikő Porpáczi*
H-1111 Budapest, Hungary
Phone: (+36-1) 463-4140
Fax: (+36-1) 463-2550

Curriculum of BSc in Civil Engineering (8 semesters), Branch of Structural Engineering, Major of Buildings

Subject			working hours / week								Requisites
Name	Code	Credits	1	2	3	4	5	6	7	8	
Compulsory English 1.	BMEGT63A3E1		0/4/t/4								
Compulsory English 2.	BMEGT63A3E2			0/4/t/4							
Communication Skills for Civil Engineers	BMEGT60A6EO				0/2/t/2						
Mathematics A1a - Calculus	BMETE90AX00		4/2/e/6								
Mathematics A2a - Vector Functions	BMETE90AX02			4/2/e/6							Mat1
Mathematics A3 for Civil Engineers	BMETE90AX07				2/2/e/4						Mat2
Physics for Civil Engineers	BMETE11AX13			2/0/t/2							Mat1
Civil Eng. Representation and Drawing	BMEEOMEAT01		2/2/t/4								
Chemistry of Construction Materials	BMEEOEMAT02		2/0/t/2								
Statics	BMEEOTMAT03		2/3/e/6								
Strength of Materials	BMEEOTMAT04			3/3/e/6							Mat1 AT03
Dynamics	BMEEOTMAT05				2/1/e/3						AT04
Technical Informatics	BMEEOFTAT06		1/1/t/2								
Civil Engineering Informatics	BMEEOFTAT31			2/2/t/5							AT06
Surveying I.	BMEEOAFAT08		2/2/t/4								
Surveying II.	BMEEOAFAT09			1/2/e/3							AT08
Introduction to Geoinformatics	BMEEOFTAT10				2/1/t/3						AT31 AT09
Geology	BMEEOEMAT11		1/2/e/3								
Construction Materials I.	BMEEOEMAT12				1/2/t/3						AT02
Soil Mechanics	BMEEOGTAT13				2/2/e/4						AT04 AT11
Earthworks	BMEEOGTAT14					2/1/e/3					AT13
Foundation Engineering	BMEEOGTAT15						2/1/e/4				AT14
Basis of Design	BMEEOHSAT16				2/0/t/2						AT04
Steel Structures I.	BMEEOHSAT17					2/1/t/3					Mat2 AT12 AT16
Reinforced Concrete Structures I.	BMEEOHSAT18					2/1/e/4					Mat2 AT12 AT16
Timber and Masonry Structures	BMEEOHSAT19				2/1/t/3						AT04 AT12
Building Construction Study	BMEEOMEAT20			2/1/t/3							AT01
Roads	BMEEOUVAT21				2/1/t/3						AT09
Railway Tracks	BMEEOUVAT22					2/1/e/3					AT09
Basics of Environmental Engineering	BMEEOVKAT23					2/0/t/2					
Public Works	BMEEOVKAT24				2/2/e/4						AT25 AT26
Hydrology I.	BMEEOVVAT25		2/1/e/3								
Hydraulics I.	BMEEOVVAT26			2/1/e/3							
Hydraulic Engineering, Water Management	BMEEOVVAT27					2/2/t/4					AT25 AT26
Micro- and Macroeconomics	BMEGT30A001							4/0/e/4			
Management and Enterprise	BMEGT20A001								4/0/t/4		
Business Law	BMEGT55A001				2/0/t/2						
Urban and Regional Development	BMEEOUVAT28						3/0/t/3				AT26
Theory of Administration, Real-estate Registr.	BMEEOUVAT29								3/0/t/3		
Construction Management - Estimates	BMEEPEKAS01						1/2/t/3				AT13 AT18
Construction Management - Contracting	BMEEPEKAS02							0/2/e/2			AS01
Rock Mechanics	BMEEOEMAS03							1/1/t/2			AT11 AT19
Construction Materials II.	BMEEOEMAS04						2/2/e/4				AT12
Structural Analysis	BMEEOTMAS05					2/3/e/5					Mat2 AT04
Finite Element Modelling	BMEEOTMAS06						1/2/t/4				AS05
Steel Structures II.	BMEEOHSAS07						2/1/t/4				AT17 AS05
Reinforced Concrete Structures II.	BMEEOHSAS08						2/2/e/4				AT18 AS05
Bridge Construction	BMEEOHSAS09							2/1/e/4			AS07 AS08
Constructional Technology	BMEEOHSAS10							1/2/t/3			AS07 AS08
Underground Structures, Deep Foundation	BMEEOGTAS11							3/1/t/4			AT15
Building Construction I.	BMEEOMEAS12					2/1/t/4					AT20
Building Construction II.	BMEEOMEAS13						2/1/e/3				AS12
Residential Building Design	BMEEOMEAS14							1/2/t/3			AS13
Surveying Field Course	BMEEOAFAT30			9n/t/3							AT09!
Laboratory Practice of Testing of Str.&Mat.	BMEEOHSAS15								9n/t/3		AT19 AS07 AS08
Field Course of Structure Geodesy	BMEEOAFAS16					3n/t/1					AT17 AT18 AT30
Industrial Practice	BMEEODHAS17							4weeks			AS01!
Steel Buildings	BMEEOHSASA1								2/2/e/5		AS07
Reinforced Concrete Buildings	BMEEOHSASA2							2/2/e/5			AS08
Timber Structures	BMEEOHSASA3								2/1/t/3		AT19
Strengthening of Structures	BMEEOHSASA4								1/1/e/2		AS08
Composite Building Structures	BMEEOHSASA5								1/1/e/2		AS07
Industrial and Agricultural Building Design	BMEEOMEASA6							1/2/e/3			AS13
Elective subject	BMEEO**A***								4cr.		
Diploma project	BMEEODHASDM									24cr.	min. 204 cr.
Total credits			34	35	31	30	30	30	26	24	Total 240cr.
Elective subject:											
Surveying for Engineering Planning	BMEEOAFASI2								2/2/e/4		AT30
Beginners' Hungarian Course	BMEGT658151								0/4/t/4		
Hungarian Culture (in English)	BMEGT658361								0/2/t/2		
Sociology	BMEGT43A002								0/2/t/2		
Theory and Practice of Environmental Econ.	BMEGT42N000								3/0/e/4		

Curriculum of MSc in Structural Engineering, Major in Computational Structural Engineering

Subject			Semesters (lect/sem/exams/credits)				Requisites
Name	**Code**	**Credits**	**1**	**2**	**3**		
Advanced Mathematics	BMETE90MX33		2/1/e/3				
Physic Laboratory	BMETE11MX22			0/1/t/1			
Numerical Methods	BMEEOFTMKT2			1/2/e/3			
Database Systems	BMEEOFTMKT3		2/0/t/2				
Advanced Mechanics	BMEEOTMMST9		2/2/e/4				
Finite Element Method I.	BMEEOTMMST0		2/0/e/2				
FEM Modelling of Structures	BMEEOHSMB01		5d/t/2				MST0!
Management Accounting and Controlling	BMEGT35M410				3/0/t/4		
Engineering Ethics	BMEGT41M004				2/0/t/2		
Decision Supporting Methods	BMEEPEKMST4		2/0/t/2				
Structural Reliability	BMEEOHSMST5		2/0/t/2				
Structural Dynamics	BMEEOTMMB02		2/2/t/5				
Stability of Structures	BMEEOTMMB03		2/2/e/5				
Material Models and Plasticity	BMEEOTMMB04			2/1/t/4			
Finite Element Method II.	BMEEOTMMB05			2/1/e/4			MB01
Differentiated Subjects			3 cr.	17 cr.			
Elective Subjects					5 cr.		
Diploma Project	BMEEODHMSDM				t/20		
Total credits			**30**	**29**	**31**		
Exams			**4**	**4**	**0**		
Differentiated Subjects							
Numerical Models for Structures	BMEEOTMMB06			2/0/t/3			
Structural Analysis Theory	BMEEOTMMB07		1/1/f/3				
Seismic Design	BMEEOHSMC03			1/1/t/3			MB02
Conceptual Design	BMEEOHSMB08			2/0/f/3			
FEM Based Structural Design	BMEEOHSMB09			1/2/t/4			MB01, MB03
Geotechnical Design	BMEEOGTMCT1			2/1/e/4			
Numerical Modelling in Geotechnics	BMEEOGTMC05			1/1/t/3			
Extreme Actions of Structures	BMEEOHSMB10		2/0/t/3				
Fracture Mechanics and Fatigue	BMEEOHSMB11			3/0/e/4			

Pentele Duna Bridge

FACULTY OF ELECTRICAL

ENGINEERING AND INFORMATICS

*The first artificial satellite of Hungary
has been made at Faculty of Electrical
Engineering and Informatics*

The Faculty of Electrical Engineering founded in 1949 has been renowned for excellence in research and education throughout the years of changes in the scope of engineering. Over this period, the faculty has earned a wide-spread international reputation for its high academic standards and scientific achievements. Spearheading the movement to establish a modern education system, it has offered a comprehensive English curriculum since 1992. Nearly the same time, the name of the faculty was changed to Faculty of Electrical Engineering and Informatics in order to give recognition to the growing importance of computer science. The education programmes in English include a 3.5-year B.Sc., a 2-year M.Sc. and a 3-year Ph.D. programme in the fields of electrical and software engineering.

This Bulletin describes the curricula and the subjects being available for the 2012/2013 academic year, regarding the BSc, MSc and PhD programmes, respectively.

The undergraduate **B.Sc. programme** (7 semesters) aims at providing a comprehensive knowledge with sound theoretical foundations in two areas: (1) Electrical Engineering including more specific studies in electronics, computer engineering and power engineering; and (2) Software Engineering dedicated to the major domains of computer science. The major specializations in Electrical Engineering are infocommunication systems, embedded and controller systems and power engineering. Studies in Software Engineering include specialization in infocommunication and software technology. Each specialization contains three courses focusing on the field of interest followed by a laboratory course and a project laboratory. In order to pursue studies in a given specialization the number of students must exceed a certain threshold, otherwise the interested students are kindly directed to another specialization.

The **M.Sc. programme** (4 semesters) further advances the knowledge obtained in the undergraduate programmes in the same two fields: (1) Electrical Engineering, offering specializations in (i) embedded systems, (ii) infocommunication systems, and (iii) electrical machines and drives; (2) Software Engineering, offering specializations in (i) applied computer science, and (ii) system development; and (3) Business Information Systems, offering specialization in (i) Analytical Business Intelligence.

The post-graduate **Ph.D. programme** is available in all domains offered in the MSc programme.

Since research and development requires innovative engineering expertise, one of the major concerns of the faculty is to endow students with high level mathematical skills in modeling complex engineering systems. This objective implies the use of system and algorithmic theory in addition to a thorough knowledge in physics. The search for optimal solutions in the highly complex architectures of electrical and software engineering necessitates not only engineering but economical considerations, as well. As a result, the scope of the programme must include design, research and management expertise at the same time.

Several strategies have been designed to help students develop high level skills in mathematics, physics, and computation. Besides theoretical knowledge they need to carry out design and development activities in the field of communication, instrumentation, and power industries to further perfect their practical skills. The curriculum also includes solving tasks in the fields of production and operation.

Scientific groups are formed to encourage the students to do independent but supervised laboratory work. Project laboratory is one of the core parts of the studies which are dedicated to independent problem solving with the armoury of modern work stations and SW packages. The expertise of handling these tools are inevitable in pursuing an engineering career.

In order to strengthen the transfer of knowledge and know-how between the university and industry, the faculty maintains close contact with well known multinational companies in the field of communication and computer industry. As a result, many industrial experts offer their experience and knowledge as part-time lecturers, project supervisors, members of examination committees.

Admission policy

To maintain a high educational standard is the basic interest of both the university and the students. Only a constant guard of quality can ensure that tuition fee is traded for a degree of high reputation bearing a competitive value in the global market. Therefore, the priority of our acceptance policy is sustaining the quality of education by selecting those students whose knowledge and previous qualifications are in match with the expertise required by the courses. This rule holds for all applicants, no matter the country or the educational institutions they came from. Only the implementation of this acceptance policy helps us to preserve the value of the degree, which the students rightly deserve in exchange of their tuition fee and in exchange of their continuous effort committed during the course. In order to implement the principles, our faculty has adopted the following terms of acceptance:

Practical guidelines for acceptance to the MSc programme

1. Applicants with B.Sc. studies having a WGAP (Weighted Grade Average Point) equal or better than 'good' (more than 3.51 out of 5.00) will receive acceptance to the M.Sc. course.
2. Applicants with a B.Sc. qualification less than 'good' (less than 3.50 out of 5.00) are regretfully rejected to enter the M.Sc. program.
3. Applicants should also submit two recommendations given by renowned academic personnel.

Practical guidelines for acceptance to the PhD programme

1. The primary condition of admission to postgraduate studies is that the applicant must hold a Master of Science (or Engineering) degree in Electrical and Electronic Engineering (or in some closely related fields) or Informatics. Admission to postgraduate studies will be considered if the qualification of previous studies is at least of level "good" (more than 3.51 out of 5.00) or equivalent.

2. Applicants are expected to have a definite scope of research in electrical engineering or computer science, where they would like to advance their knowledge. They are requested to present a proposal, specifying a domain of interest with some research objectives, milestones and deliverables during the postgraduate studies. The suggested topic should have sufficient preliminaries in their university studies.

3. Applicants with experience and initial results in the suggested research topic will have preference. A short summary of preliminary research activities together with relevant reports, published papers ... etc. would be of help in the admission process.

4. Applicants should also submit two recommendations given by renowned academic personnel.

Each admission is valid only for the forthcoming academic year (starting right after the letter of acceptance). In the case of commencing studies later than the semester indicated in the letter of acceptance, or returning to studies after a passive semester, the faculty does not take responsibility for ensuring that the students can follow the same specialization which he or she studied prior to the passive semester, and reserves the right to direct the student to other specialization depending on the changes in the number applicants for specializations.

Departments

Automation and Applied Informatics, Electronics Technology, Electron Devices, Telecommunications, Control Engineering and Information Technology, Measurement and Information Systems, Computer Science and Information Theory, Broadband Infocommunications and Electromagnetic Theory, Telecommunications and Media Informatics, Electric Power Engineering

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Budapest University of Technology and Economics
Faculty of Electrical Engineering and Informatics

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Fax: (+36-1) 463-2550	*M.Sc. and Ph.D. Programmes: Dr. József Harangozó*
E-mail: nagy-margit@mail.bme.hu	*Programme Co-ordinator: Ms. Margit Nagy*

Curriculum of B.Sc. Subjects in Electrical and Software Engineering

Subject			working hours / week								Requisites
Name	Code	Credits	1	2	3	4	5	6	7	8	
Compulsory English I.	BMEGT63A301	2	0/4/0p								
Compulsory English II.	BMEGT63A302	2		0/4/0p							BMEGT63A301
Communication Skills - English	BMEGT63A061	2			0/2/0p						BMEGT63A302
English for Engineers	BMEGT63A051	2				0/2/0p					BMEGT63A061

Curriculum of B.Sc. Subjects in Electrical Engineering

Subject			working hours / week								Requisites
Name	Code	Credits	1	2	3	4	5	6	7	8	
Economics and Human Science Studies**											
Micro- and Macroeconomics	BMEGT30A001	4		4/0/0/e							
Management and Business Economics	BMEGT20A001	4				4/0/0/p					
Business Law	BMEGT55A001	2						2/0/0/p			
Obligatory Econ. & Human Elective 1		2	2/0/0/p								
Obligatory Econ. & Human Elective 2		2						2/0/0/p			
Obligatory Econ. & Human Elective 3		2						2/0/0/p			
Obligatory Econ. & Human Elective 4		2							2/0/0/p		
Obligatory Econ. & Human Elective 5		2							2/0/0/p		
Elements of Natural Science											
Mathematics A1a - Calculus	BMETE90AX00	6	4/2/0/e								
Mathematics A2a - Vector Functions	BMETE90AX02	6		4/2/0/e							BMETE90AX00-C
Mathematics A3 for Electrical Engineers	BMETE90AX09	4			2/2/0/e						BMETE90AX02-C
Mathematics A4- Probability Theory	BMETE90AX08	4			2/2/0/p						BMETE90AX02-C
Physics 1	BMETE11AX01	5	4/0/0/e								BMETE90AX00-S
Physics 2	BMETE11AX02	5		4/0/0/e							BMETE11AX01-C
Foundation of Computer Science	BMEVISZA105	6	4/2/0/e								
Materials Sciences	BMEGEMTAV01	4	3/0/1/e								
Informatics 1	BMEVIIIA202	5		3/2/0/e							BMEVIIIA108-C
Informatics 2	BMEVIAUA203	5			3/2/0/e						BMEVIHIA107*
Free Elective Subjects											
Free Elective 1		4						4/0/0/e			
Free Elective 2		4						4/0/0/e			
Free Elective 3		2						2/0/0/e			
Fundational Technical Studies											
Basics of Programming 1	BMEVIHIA106	5	2/1/1/p								
Basics of Programming 2	BMEVIAUA116	4		2/0/2/p							BMEVIHIA106-C
Digital Design 1	BMEVIIIA105	6	2/2/1/e								
Digital Design 2	BMEVIIIA106	6		3/2/0/e							BMEVIIIA105-C
Signals and Systems 1	BMEVIHVA109	6		4/2/0/e							BMETE90AX00-S
Signals and Systems 2	BMEVIHVA200	6			3/3/0/e						BMEVIHVA109-C
Electrotechnics	BMEVIVEA201	6		4/0/1/p							BMEVIHVA109-C
Electromagnetic Fields	BMEVIHVA204	5			3/1/0/e						
Electronics 1	BMEVIHIA205	6			3/2/0/e						
Electronics 2	BMEVIAUA300	5				3/2/0/e					BMEVIHIA205-S
Microelectronics	BMEVIEEA306	5				3/0/1/p					BMEVIHIA205-S
Measurement Technology	BMEVIMIA206	5			3/2/0/p						BMEVIHVA200-S
Power System Engineering	BMEVIVEA207	5			3/1/1/e						BMEVIHVA200-S
											BMEVIVEA201-C
Infocommunication	BMEVITMA301	5				3/2/0/e					BMETE90AX08-C
Electronics Technology	BMEVIETA302	5				3/1/1/e					BMEGEMTAV01-S
											BMETE11AX01-S
Control Engineering	BMEVIIIA303	5				3/2/0/e					BMEVIHVA200-S
Specialization Studies											
Specialization Theoretical Subject 1		4						3/1/0/e			
Specialization Theoretical Subject 2		4						3/1/0/e			
Specialization Theoretical Subject 3		4						3/1/0/e			
Laboratory 1	BMEVIMIA304	5					0/0/4/p				BMEVIMIA206-C
											BMEVIHIA205-C
Laboratory 2	BMEVIMIA305	4						0/0/3/p			BMEVIMIA304-C
											BMEVIIIA303-S
											BMEVIAUA300-S
Laboratory for Specialization		4						0/0/3/p			
Project Laboratory		5						0/0/4/p			
Thesis Project		15							0/10/0/s		

S - Signature of the Subject is required
C - Credit of the Subject is required
* - Cannot be taken prior to the Subject (can be taken in parallel)

**Course descriptions and available Economics and Human Sciences Electives are listed in this Bulletin at the Faculty of Economic and Social Sciences on page 171. Restrictions may apply.

Curriculum of B.Sc. Subjects in Software Engineering

Subject			working hours / week								Requisites
Name	Code	Credits	1	2	3	4	5	6	7	8	
Economics and Human Science Studies											
Micro- and Macroeconomics	BMEGT30A001	4	4/0/0/e								
Management and Business Economics	BMEGT20A001	4		4/0/0/p							
Business Law	BMEGT55A001	2			2/0/0/p						
Obligatory Econ. & Human Elective 1		2	2/0/0/p								
Obligatory Econ. & Human Elective 2		2			2/0/0/p						
Obligatory Econ. & Human Elective 3		2				2/0/0/p					
Obligatory Econ. & Human Elective 4		2				2/0/0/p					
Obligatory Econ. & Human Elective 5		2					2/0/0/p				
Elements of Natural Science											
Calculus 1 for Informaticians	BMETE90AX04	7	4/2/0/e								
Calculus 2 for Informaticians	BMETE90AX05	7		4/2/0/e							BMETE90AX04-C
Probability Theory	BMEVISZA208	4			3/1/0/e						BMETE90AX05*
Introduction to the Theory of Computing 1	BMEVISZA103	5	2/2/0/e								
Introduction to the Theory of Computing 2	BMEVISZA110	4		2/2/0/e							BMEVISZA103-S
Coding Technology	BMEVIHIA209	5			3/1/0/p						BMEVISZA110-C
Theory of Algorithms	BMEVISZA213	5				2/2/0/e					BMEVISZA110-S
Physics 1i	BMETE11AX03	4	4/0/0/e								BMETE90AX04-C
Physics 2i	BMETE11AX04	4		4/0/0/e							BMETE11AX03-C
Free Elective Subjects											
Free Elective 1		2					2/0/0/p				
Free Elective 2		4						4/0/0/e			
Free Elective 3		4						4/0/0/e			
Fundational Technical Studies											
Signals and Systems	BMEVIHVA214	5				3/1/0/p					BMETE90AX05-C
Electronics	BMEVIEEA307	4					3/1/0/p				BMETE11AX04*
Control Engineering	BMEVIAUA309	4					3/1/0/p				BMEVIHVA214-C
Digital Design 1	BMEVIMIA102	5	2/2/0/p								
Digital Design 2	BMEVIMIA111	5		2/2/0/e							BMEVIMIA102-C
Computer Graphics and Image Processing	BMEVIIIA316	4				3/1/0/p					
Computer Architectures	BMEVIHIA210	5		2/2/0/e							BMEVIMIA111-S
Computer Networks	BMEVIHIA215	4			3/1/0/e						BMEVIHIA210*
Telecommunication Networks and Services	BMEVITMA310	4				3/1/0/e					BMEVIHIA215-S
Measurement Laboratory 1	BMEVIMIA211	2		0/0/2/p							BMEVIMIA102-C
Measurement Laboratory 2	BMEVIMIA216	2			0/0/2/p						BMEVIMIA211-C
Measurement Laboratory 3	BMEVIMIA312	2				0/0/2/p					BMEVIMIA111-S
											BMEVIMIA219-S
Measurement Laboratory 4	BMEVIMIA315	2					0/0/2/p				BMEVIHIA215-S
											BMEVIMIA219-S
Basics of Programming 1	BMEVIEEA100	5	2/2/0/e								
Basics of Programming 2	BMEVIIIA114	4		2/2/0/p							BMEVIEEA100-C
Software Technology	BMEVIIIA217	4			3/1/0/e						BMEVIIIA114-C
Software Techniques	BMEVIAUA218	4				3/1/0/e					BMEVIIIA217-S
Management of Information Systems	BMEVITMA314	4						3/1/0/e			BMEVITMA310-S
Operating Systems	BMEVIMIA219	4				3/1/0/e					BMEVIHIA210-S
Databases	BMEVITMA311	5					3/1/0/e				BMEVISZA213-S
Artificial Intelligence	BMEVIMIA313	5					3/1/0/e				BMEVISZA213-S
Software Laboratory 1	BMEVIEEA101	2	0/0/2/p								BMEVIEEA100*
Software Laboratory 2	BMEVIIIA115	2		0/0/2/p							BMEVIIIA114*
Software Laboratory 3	BMEVIIIA212	2			0/0/2/p						BMEVIIIA114-C
Software Laboratory 4	BMEVIIIA220	2				0/0/2/p					BMEVIIIA217-S
Software Laboratory 5	BMEVITMA308	2					0/0/2/p				BMEVITMA308-C
System Modeling	BMEVIMIA401	5						3/1/0/e			BMEVISZA208-C
											BMEVIIIA217-S
Specialization Studies											
Specialization Subject 1		4						3/1/0/e			
Scecialization Subject 2		4						3/1/0/e			
Specialization Subject 3		4						3/1/0/e			
Specialization Laboratory 1		2						0/0/2/p			
Specialization Laboratory 2		2							0/0/2/p		
Project Laboratory		6						0/0/4/p			
Thesis Project		15							0/10/0/s		

S - Signature of the Subject is required
C - Credit of the Subject is required
* - Cannot be taken prior to the Subject (can be taken in parallel)

Curriculum of M.Sc. Subjects in Software Engineering
Applied Computer Science Specialization

Subject			working hours / week				Requisites
Name	Code	Credits	1	2	3	4	
Fundamentals in Natural Sciences (24 credits)							
System Optimization	BMEVISZM117	4	4/0/0/e				
Advanced Mathematics for Software Engineers D (Stochastics 1 - 2)	BMETE90MX43	4		4/0/0/e			
Formal Methods	BMEVIMIM100	4	3/0/0/p				
Data Security	BMEVIHIM102	4	3/0/0/p				
Languages and Automata	BMEVISZM104	4		3/0/0/p			
Software Architectures	BMEVIAUM105	4		3/0/0/p			
Subjects from Economic and Human Sciences (10 credits)							
Elective Subject 1	BMEGTxxMxxx	2		2/0/0/p			
Elective Subject 2	BMEGTxxMxxx	2		2/0/0/p			
Elective Subject 3	BMEGTxxMxxx	2		2/0/0/p			
Engineering Management	BMEVITMM112	4				4/0/0/e	
Basic Obligatory Subjects for the Specialization (28 credits)							
Distributed Systems	BMEVIAUM124	4	2/1/0/e				Excluded if BMEVIIIM140 was already taken
Mobil Software Development	BMEVIAUM125	4	2/1/0/e				
Model-Driven Paradigms	BMEVIAUM126	4	2/1/0/e				Excluded if VIMIM147 and VIIIM228 was already taken
Service-Oriented Systems	BMEVIAUM208	4		2/1/0/e			Excluded if BMEVIMIM234 was already taken
Integrated Information Systems	BMEVIAUM209	4		2/1/0/e			
Laboratory for Distributed Systems and Mobile Software Development	BMEVIAUM210	4		0/0/3/p			
Laboratory for Service-Oriented Systems and Model-Driven Paradims	BMEVIAUM302	4			0/0/3/p		
Basic Compulsory Elective Subjects for the Specialization (52 credits)							
Compulsory Elective Subject 1	BMEVIAUMxxx	4		2/1/0/e			
Compulsory Elective Subject 2	BMEVIAUMxxx	4			2/1/0/e		
Compulsory Elective Subject 3	BMEVIAUMxxx	4			2/1/0/e		
Project Laboratory 1	BMEVIAUM813	5	0/0/5/p				
Project Laboratory 2	BMEVIAUM863	5		0/0/5/p			Credits of BMEVIAUM813
Thesis Project 1	BMEVIAUM913	10			0/5/0/p		Credits of BMEVIAUM863
Thesis Project 2	BMEVIAUM963	20				0/10/0/p	Credits of BMEVIAUM913 and BMETE90MX43, and all credits of Basic Obligatory Subjects
Freely Elective Subjects (6 credits)							
Freely Elective Subject 1	BMExxxxxxxx	4				4/0/0/p	
Freely Elective Subject 2	BMExxxxxxxx	4				4/0/0/p	
Freely Elective Subject 3	BMExxxxxxxx	2				2/0/0/p	

Notes:

1. Subjects from Economic and Human Sciences: *three subjects are selected by the Faculty from the following list before the actual semester*

Quality Management	BMEGT20M002	2		2/0/0/p			
Argumentation, Negotiation, Persuasion	BMEGT41MS01	2		2/0/0/p			
Investments	BMEGT35M004	2		2/0/0/p			
Management Accounting	BMEGT35M005	2		2/0/0/p			

2. Basic Compulsory Elective Subjects: *the three subjects will be determined before the actual semester.*

3. Freely Elective Subjects: *a list of these subjects is under construction.*

Notation: **working hours/week:**   *x/y/z/r*
x = lecture hours
y = practice hours
z = laboratory hours
r = requirement (e = exam, p = continuous work for a mark, s = signature)

Curriculum of M.Sc. Subjects in Software Engineering System Development Specialization

Subject			working hours / week				Requisites
Name	Code	Credits	1	2	3	4	
Fundamentals in Natural Sciences (24 credits)							
System Optimization	BMEVISZM117	4	4/0/0/e				
Advanced Mathematics for Software Engineers C (Mathematical Logics + Applied Algebra)	BMETE90MX42	4		4/0/0/e			
Formal Methods	BMEVIMIM100	4	3/0/0/p				
Data Security	BMEVIHIM102	4	3/0/0/p				
Languages and Automata	BMEVISZM104	4		3/0/0/p			
Software Architectures	BMEVIAUM105	4		3/0/0/p			
Subjects from Economic and Human Sciences (10 credits)							
Elective Subject 1	BMEGTxxMxxx	2		2/0/0/p			
Elective Subject 2	BMEGTxxMxxx	2		2/0/0/p			
Elective Subject 3	BMEGTxxMxxx	2		2/0/0/p			
Engineering Management	BMEVITMM112	4				4/0/0/e	
Basic Obligatory Subjects for the Specialization (28 credits)							
Object-Oriented Development	BMEVIIIM140	4	2/1/0/e				Excluded if BMEVIAU124 was already taken
Parallel and Grid Systems	BMEVIIIM141	4	2/1/0/e				
Software Testing	BMEVIIIM142	4	2/1/0/e				Excluded if BMEVIMIM148 was already taken
Metamodels in Software Design	BMEVIIIM228	4		2/1/0/e			Excluded if VIMIM147 and VIAUM126 were already taken
Software Quality	BMEVIIIM229	4		2/1/0/e			
Laboratory for Grid and Object Oriented Development	BMEVIIIM230	4		0/0/3/p			
Laboratory for Software Testing and Quality	BMEVIIIM308	4			0/0/3/p		
Basic Compulsory Elective Subjects for the Specialization (52 credits)							
IT Security and Management	BMEVIIIM274	4		2/1/0/e			
SOA-Based Integration	BMEVIIIM371	4			2/1/0/e		
Linux-Based System Development	BMEVIIIM339	4			2/1/0/e		
Project Laboratory 1	BMEVIIIM814	5	0/0/5/p				
Project Laboratory 2	BMEVIIIM864	5		0/0/5/p			Credits of BMEVIIIM814
Thesis Project 1	BMEVIIIM914	10			0/5/0/p		Credits of BMEVIIIM864
Thesis Project 2	BMEVIIIM964	20				0/10/0/p	Credits of BMEVIIIM914 and BMETE90MX42, and all credits of Basic Obligatory Subjects
Freely Elective Subjects (6 credits)							
Freely Elective Subject 1	BMExxxxxxxx	4				4/0/0/p	
Freely Elective Subject 2	BMExxxxxxxx	4				4/0/0/p	
Freely Elective Subject 3	BMExxxxxxxx	2				2/0/0/p	

Notes:

1. Subjects from Economic and Human Sciences: *three subjects are selected by the Faculty from the following list before the actual semester*

Quality Management	BMEGT20M002	2		2/0/0/p			
Argumentation, Negotiation, Persuasion	BMEGT41MS01	2		2/0/0/p			
Investments	BMEGT35M004	2		2/0/0/p			
Management Accounting	BMEGT35M005	2		2/0/0/p			

2. Freely Elective Subjects: *a list of these subjects is under construction.*

Notation: **working hours/week:**   *x/y/z/r*
x = lecture hours
y = practice hours
z = laboratory hours
r = requirement (e = exam, p = continuous work for a mark, s = signature)

Curriculum of M.Sc. Subjects in Electrical Engineering
Embedded Systems Specialization

Subject			working hours / week				Requisites
Name	Code	Credits	1	2	3	4	
Fundamentals in Natural Sciences (24 credits)							
Physics 3	BMETE11MX01	5	3/1/0/e				
Measurement Theory	BMEVIMIM108	4	3/0/0/p				
Software Design	BMEVIIIM110	4	3/0/0/p				
Advanced Mathematics for Electrical Engineers A (Advanced Linear Algebra + Stochastics)	BMETE90MX30	6		4/2/0/e			
Nanoscience	BMEVIETM114	5		4/0/0/p			
Subjects from Economic and Human Sciences (10 credits)							
Elective Subject 1	BMEGTxxMxxx	2		2/0/0/p			
Elective Subject 2	BMEGTxxMxxx	2		2/0/0/p			
Elective Subject 3	BMEGTxxMxxx	2		2/0/0/p			
Engineering Management	BMEVITMM112	4				4/0/0/e	
Basic Obligatory Subjects for the Specialization (28 credits)							
System Architectures	BMEVIMIM149	4	2/1/0/e				
Software Technology for Embedded Systems	BMEVIMIM150	4	2/1/0/e				
Real-time and Safety-critical Systems	BMEVIMIM151	4	2/1/0/e				
Information Processing	BMEVIMIM237	4		2/1/0/e			
Embedded System Design	BMEVIMIM238	4		2/1/0/e			
Laboratory for System Architectures	BMEVIMIM239	4		0/0/3/p			
Laboratory for Information Processing	BMEVIMIM322	4			0/0/3/p		
Basic Compulsory Elective Subjects for the Specialization (52 credits)							
Interfacing Embedded Systems to Information Systems	BMEVIMIM343	4		2/1/0/e			
High-Performance Microcontrollers	BMEVIMIM342	4			2/1/0/e		
Digital Filters	BMEVIMIM278	4			2/1/0/e		
Project Laboratory 1	BMEVIMIM802	5	0/0/5/p				
Project Laboratory 2	BMEVIMIM852	5		0/0/5/p			Credits of BMEVIMIM802
Thesis Project 1	BMEVIMIM902	10			0/5/0/p		Credits of BMEVIMIM852
Thesis Project 2	BMEVIMIM952	20				0/10/0/p	Credits of BMEVIMIM902 and BMETE90MX30, and all credits of Basic Obligatory Subjects
Freely Elective Subjects (6 credits)							
Freely Elective Subject 1	BMExxxxxxxx	4				4/0/0/p	
Freely Elective Subject 2	BMExxxxxxxx	4				4/0/0/p	
Freely Elective Subject 3	BMExxxxxxxx	2				2/0/0/p	

Notes:

1. Subjects from Economic and Human Sciences: *three subjects are selected by the Faculty from the following list before the actual semester*

Quality Management	BMEGT20M002	2			2/0/0/p		
Argumentation, Negotiation, Persuasion	BMEGT41MS01	2			2/0/0/p		
Investments	BMEGT35M004	2			2/0/0/p		
Management Accounting	BMEGT35M005	2			2/0/0/p		

2. Freely Elective Subjects: *a list of these subjects is under construction.*

Notation: **working hours/week:** *x/y/z/r*
x = lecture hours
y = practice hours
z = laboratory hours
r = requirement (e = exam, p = continuous work for a mark, s = signature)

Curriculum of M.Sc. Subjects in Electrical Engineering Infocommunication Systems Specialization

Subject			working hours / week				Requisites
Name	Code	Credits	1	2	3	4	
Fundamentals in Natural Sciences (24 credits)							
Physics 3	BMETE11MX01	5	3/1/0/e				
Communication Theory	BMEVIHVM107	4	3/0/0/p				
Software Design	BMEVIIIM110	4	3/0/0/p				
Advanced Mathematics for Electrical Engineers B (Combinatorial Optimization + Stochastics)	BMETE90MX38	6		4/2/0/e			
Photonic Devices	BMEVIETM113	5		4/0/0/p			
Subjects from Economic and Human Sciences (10 credits)							
Elective Subject 1	BMEGTxxMxxx	2			2/0/0/p		
Elective Subject 2	BMEGTxxMxxx	2			2/0/0/p		
Elective Subject 3	BMEGTxxMxxx	2			2/0/0/p		
Engineering Management	BMEVITMM112	4				4/0/0/e	
Basic Obligatory Subjects for the Specialization (28 credits)							
Wireline and Wireless Transmission Technologies	BMEVITMM155	4	2/1/0/e				
Convergent Networks and Services	BMEVITMM156	4	2/1/0/e				Excluded if BMEVIHIM244 was already taken
Network and Service Management	BMEVITMM157	4	2/1/0/e				
Human-Computer Interaction	BMEVITMM224	4		2/1/0/e			
Network Planning	BMEVITMM215	4		2/1/0/e			Excluded if BMEVIHIM354 was already taken
Laboratory for Infocommunications I.	BMEVITMM245	4		0/0/3/p			
Laboratory for Infocommunications II.	BMEVITMM311	4			0/0/3/p		
Basic Compulsory Elective Subjects for the Specialization (52 credits)							
Information and Network Security	BMEVITMM280	4		2/1/0/e			
Optical Networks	BMEVITMM347	4			2/1/0/e		
Performance Analysis of Infocommunication Systems	BMEVITMM325	4			2/1/0/e		
Project Laboratory 1	BMEVITMM807	5	0/0/5/p				
Project Laboratory 2	BMEVITMM857	5		0/0/5/p			Credits of BMEVITMM807
Thesis Project 1	BMEVITMM907	10			0/5/0/p		Credits of BMEVITMM857
Thesis Project 2	BMEVITMM957	20				0/10/0/p	Credits of BMEVITMM907 and BMETE90MX38, and all credits of Basic Obligatory Subjects
Freely Elective Subjects (6 credits)							
Freely Elective Subject 1	BMExxxxxxx	4				4/0/0/p	
Freely Elective Subject 2	BMExxxxxxx	4				4/0/0/p	
Freely Elective Subject 3	BMExxxxxxx	2				2/0/0/p	

Notes:

1. Subjects from Economic and Human Sciences: *three subjects are selected by the Faculty from the following list before the actual semester*

Quality Management	BMEGT20M002	2			2/0/0/p		
Argumentation, Negotiation, Persuasion	BMEGT41MS01	2			2/0/0/p		
Investments	BMEGT35M004	2			2/0/0/p		
Management Accounting	BMEGT35M005	2			2/0/0/p		

2. Freely Elective Subjects: *a list of these subjects is under construction.*

Notation: **working hours/week:** *x/y/z/r*
x = lecture hours
y = practice hours
z = laboratory hours
r = requirement (e = exam, p = continuous work for a mark, s = signature)

Curriculum of M.Sc. Subjects in Electrical Engineering
Electrical Machines and Drives Specialization

Subject			working hours / week				Requisites
Name	Code	Credits	1	2	3	4	
Fundamentals in Natural Sciences (24 credits)							
Physics 3	BMETE11MX01	5	3/1/0/e				
Alternating Current Systems	BMEVIVEM111	4	3/0/0/p				
Measurement Theory	BMEVIMIM108	4	3/0/0/p				
Advanced Mathematics for Electrical Engineers C (Advanced Linear Algebra + Analysis)	BMETE90MX39	6		4/2/0/e			
Electrical Insulations and Discharges	BMEVIVEM116	5		4/0/0/p			
Subjects from Economic and Human Sciences (10 credits)							
Elective Subject 1	BMEGTxxMxxx	2			2/0/0/p		
Elective Subject 2	BMEGTxxMxxx	2			2/0/0/p		
Elective Subject 3	BMEGTxxMxxx	2			2/0/0/p		
Engineering Management	BMEVITMM112	4				4/0/0/e	
Basic Obligatory Subjects for the Specialization (28 credits)							
Theory and Design of Electric Machines	BMEVIVEM173	4	2/1/0/e				
Electrical Equipment and Insulation	BMEVIVEM174	4	2/1/0/e				
Control of Electrical Drives	BMEVIVEM175	4	2/1/0/e				
Electrical Systems of Renewable Energies	BMEVIVEM262	4		2/1/0/e			
Electric Vehicles	BMEVIVEM263	4		2/1/0/e			
Laboratory for Electrical Machines and Drives 1	BMEVIVEM264	4		0/0/3/p			
Laboratory for Electrical Machines and Drives 2	BMEVIVEM319	4			0/0/3/p		
Basic Compulsory Elective Subjects for the Specialization (52 credits)							
Servo and Robot Drives	BMEVIVEM287	4		2/1/0/e			
Modeling and Simulation	BMEVIVEM365	4			2/1/0/e		
Microcomputer Controlled Drives	BMEVIVEM366	4			2/1/0/e		
Project Laboratory 1	BMEVIVEM819	5	0/0/5/p				
Project Laboratory 2	BMEVIVEM869	5		0/0/5/p			Credits of BMEVIVEM319
Thesis Project 1	BMEVIVEM919	10			0/5/0/p		Credits of BMEVIVEM869
Thesis Project 2	BMEVIVEM969	20				0/10/0/p	Credits of BMEVIVEM919 and BMETE90MX39, and all credits of Basic Obligatory Subjects
Freely Elective Subjects (6 credits)							
Freely Elective Subject 1	BMExxxxxxxx	4				4/0/0/p	
Freely Elective Subject 2	BMExxxxxxxx	4				4/0/0/p	
Freely Elective Subject 3	BMExxxxxxxx	2				2/0/0/p	

Notes:

1. Subjects from Economic and Human Sciences: *three subjects are selected by the Faculty from the following list before the actual semester*

Quality Management	BMEGT20M002	2			2/0/0/p		
Argumentation, Negotiation, Persuasion	BMEGT41MS01	2			2/0/0/p		
Investments	BMEGT35M004	2			2/0/0/p		
Management Accounting	BMEGT35M005	2			2/0/0/p		

2. Freely Elective Subjects: *a list of these subjects is under construction.*

Notation: **working hours/week:** *x/y/z/r*
x = lecture hours
y = practice hours
z = laboratory hours
r = requirement (e = exam, p = continuous work for a mark, s = signature)

Curriculum of M.Sc. Subjects in Business Information Systems Analytical Business Intelligence Specialization

| Subject			working hours / week				Requisites
Name	Code	Credits	1	2	3	4	
Elements of Natural Sciences (10 credits)							
Mathematical Statistics	BMEVISZM102	5	3/0/2/e				
Operation Research	BMETE90MX50	5		3/1/0/e			
Economics and Human Science Studies (21 credits)							
Accounting	BMEGT35M400	5		3/1/0/e			
Controlling	BMEGT35M401	5				3/1/0/e	BMEGT35M400
E-Law	BMEGT55M400	3				2/0/0/p	
Project Management	BMEGT20M400	3			2/0/0/p		
Finances	BMEGT35M402	5	3/1/0/e				
Foundational Technical Studies (15 credits)							
Data Security	BMEVIHIM183	5	3/1/0/p				
Network and Database Technologies	BMEVITMM184	5	3/1/0/e				
Data Mining Techniques	BMEVISZM185	5		3/1/0/p			
Specialization Studies (24 credits)							
Business and Financial Analytics	BMEGT35M403	4	3/0/0/e				
Customer Analytics	BMEVITMM199	5		3/0/1/e			
Trend Analysis and Visualization	BMEVITMM246	5		3/0/1/e			
Media and Text Mining	BMEVITMM275	5			3/0/1/e		BMEVISZM185
Risk Analysis and Management	BMEVIHIM277	5			3/0/1/e		
Basic Compulsory Elective Subjects (8 credits)							
Processing of Personal and Public Data	BMEVIETM294	4			3/0/0/e		
Engineering Management	BMEVITMM112	4			4/0/0/e		
Open Elective Subjects (6 credits)							
Open Elective Subject	BMExxxxxxxx	2			2/0/0/p		
Open Elective Subject	BMExxxxxxxx	4			4/0/0/e		
Individual studies (40 credits)							
Project Laboratory 1	BMEVITMM376	4	0/0/4/p				
Project Laboratory 2	BMEVITMM388	6		0/0/6/p			BMEVITMM376
Diploma Thesis Design 1	BMEVITMM377	10			0/5/0/p		BMEVITMM388
Diploma Thesis Design 2	BMEVITMM389	20				0/10/0/p	BMEVITMM377and 84 credits from the previous subjects

Notation: **working hours/week:** *x/y/z/r*

x = lecture hours
y = practice hours
z = laboratory hours
r = requirement (e = exam, p = continuous work for a mark, s = signature)
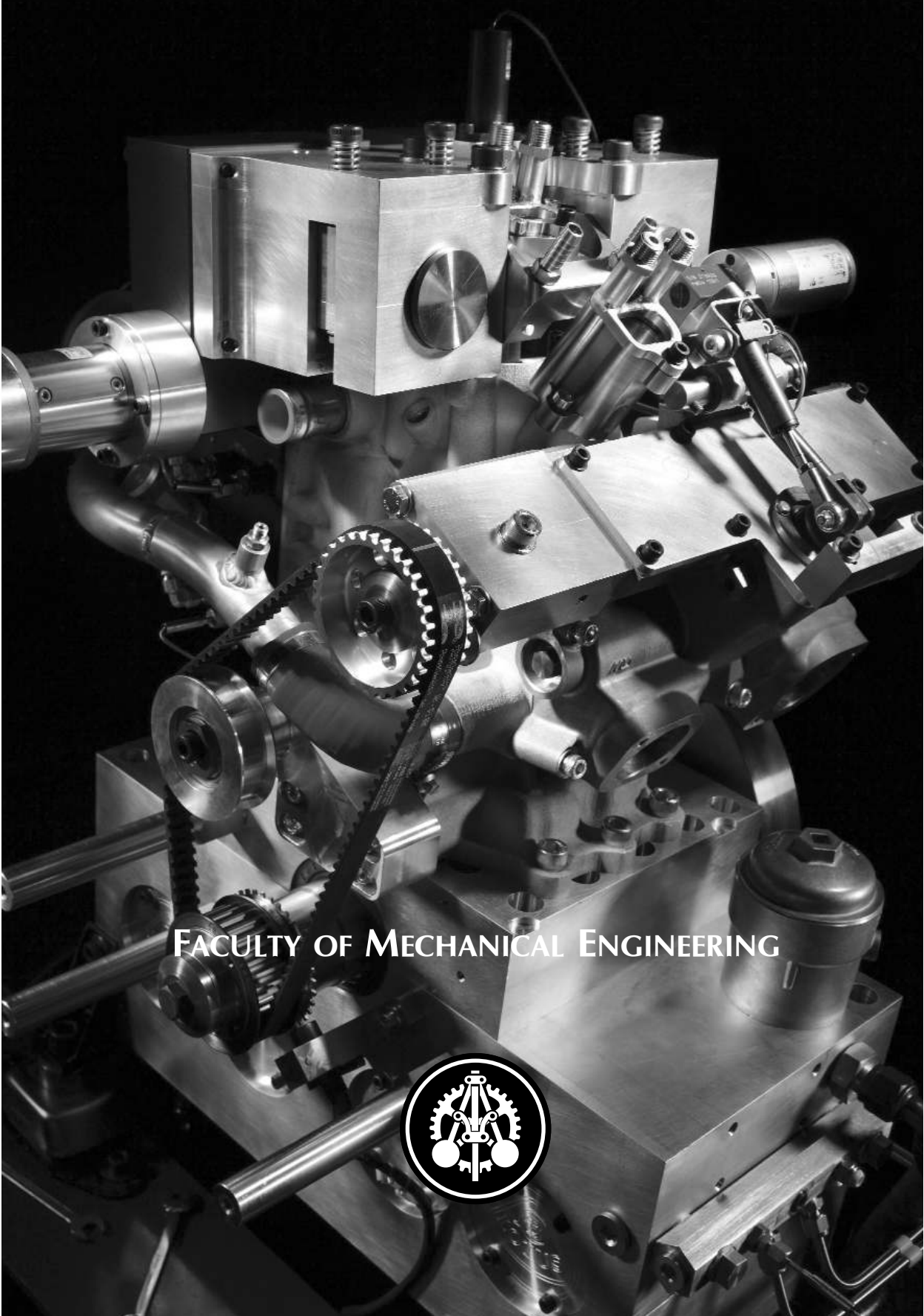
FACULTY OF MECHANICAL ENGINEERING

The Mechanical Engineering Program at the Budapest University of Technology and Economics began in 1863, and the Faculty of Mechanical Engineering was established soon afterward, beginning official operations in the 1871/72 academic year. The Faculty is justly proud of its continuous and progressive 150-year history and now offers undergraduate and graduate programs in both Hungarian and English.

Since the 2006/07 academic year, the Faculty of Mechanical Engineering has offered a 7 semester undergraduate B.Sc. degree program in English. The new two-year graduate program in English, leading to an M.Sc. degree started in February 2009, students can start the study either in fall and in spring semester. Individual postgraduate academic and research programs, which are usually completed in two to three years, are available for those who already have an M.Sc. degree and wish to pursue a Ph.D. degree.

The undergraduate B.Sc. program of the Faculty of Mechanical Engineering is designed to continue a tradition of excellence by:
- providing a well-grounded and broad knowledge that graduates of this Faculty can apply immediately in their work and also use as the basis for further studies; and
- graduating competent engineers who are not only masters of their profession, but also possess an ethical philosophy of engineering based on accuracy, punctuality and reliability as well as a respect for the human element.

The goals of the Faculty's graduate M.Sc. and Ph.D. programs are:

- to train creative, inventive mechanical engineers who can apply the engineering skills and the knowledge they have gained from the natural sciences on a state-of-the-art level; and
- to foster the development of leaders in engineering research and development.

Brief Description on the MSc in Mechanical Engineering Modeling started in 2009:

'One designed by a civil engineer starts moving that is bad; one designed by a mechanical engineer does not move that is bad, too. Mechanical engineers should design machines that move.'

This course deals with those time-dependent problems of mechanical engineering, which typically require the efficient modeling of these tasks in order to access the continuously developing methods of computational engineering. Modern computational methods are very popular since they show their easy-to-use interface for engineers. This often causes misunderstanding and disappointment during the naive applications of engineering software. Computational methods are reliable if they are properly tested and the principles of their applied algorithms and procedures are understood. This is analogous to the modern cartoon industry: the 25 pictures of one second of a cartoon can be drawn by computers if the first and the last picture of that second are designed for them by the artist but the computers will totally fail if they have to draw the cartoon without any reference picture, or based on the first (or last) picture only.

The tasks of mechanical engineers that typically require the modeling of machines in motion and that of time-varying processes are based on solid and fluid mechanics, thermodynamics and electronics. Modeling means the understanding and active application of the related theories, which are supported by differential equations and numerical methods in mathematics. Modeling needs also experimental work during the research-development-innovation process in case engineers do not have enough information about the motions and processes they want to capture by a model. Finally, modeling is also affected by the engineers knowledge in design, technology, and informatics, since the model should not be so complex that the available software is unable to solve them within reasonable time and for reasonable cost.

The above principles affected the formation of this master course. After the brief summary of the required mathematics, solid mechanics, fluid mechanics, thermodynamics, electronics, control and informatics, the students have to choose a major and a minor specialization from the following list of modules:

1. Solid Mechanics   2. Fluid Mechanics   3. Thermal Engineering
4. Design and Technology 5. Industrial Electronics (minor only)   6. Robotics

The possible combinations provide a large flexibility starting with the more research oriented knowledge (combinations of the first 3 modules), through the development oriented one (major form modules 1-3 and minor from 4-6 or vice versa), till the practice and applied oriented innovation (major and minor from the modules 4-6).

This new course is in English only. It is based on the foundations provided by the long-standing positive traditions of some former successful courses of the Faculty of Mechanical Engineering at BME, like Engineering Mathematics, Integrated Engineering (mechanical and electrical), Robotics (formerly also in Russian), Mechanical Engineering (BSc and MSc courses in English). This course is also compatible to many master courses in mechanical engineering in the European Union (see, for example, U Bristol, U Bath, ENS Cachan, TU Karlsruhe, U Hannover, TU Munich): Engineering Fluid Dynamics; Mechanics and Technical Design; Mechanics and Technology; Research in Mechanics and Systems of Engineering; Advanced Dynamics Engineering; Geometric Modeling and Design; Manufacturing Modeling; Power Transmission and Motion Control Systems; Thermal Engineering; Components of Electrical Engineering; Motion Engineering and Robotics; Dynamics and Control in Robotics; Computational Mechanics, etc.

Departments

Department of Materials Science and Engineering
Department of Fluid Mechanics
Department of Energy Engineering
Department of Building Service Engineering
  and Process Engineering
Department of Machine and Industrial Product
  Design

Department of Manufacturing Science
  and Engineering
Department of Hydrodynamics Systems
Department of Mechatronics, Optics
  and Information Engineering
Department of Applied Mechanics
Department of Polymer Engineering

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Dean of the Faculty: Prof. Dr. Gábor Stépán
Vice-Dean of the Faculty: Dr. Tibor Szalay
Program Co-ordinator: Ms. Margit Nagy

Curriculum of B.Sc. Subjects

Name	Code	Credits	1	2	3	4	5	6	7	8	Requisites
1st semester, Fall											
Compulsory English I.	BMEGT63A301	2	0/4/0								p
Descriptive Geometry	BMETE90AX06	3	1/2/0								e
Introduction to Mechanical Engineering	BMEGEVGAG01	4	2/1/1								e
Information Systems	BMEGERIA31I	4	2/0/2								p
Macro- and Microeconomics	BMEGT30A001	4	4/0/0								e
Mathematics A1a - Calculus	BMETE90AX00	6	4/2/0								e
Technical Chemistry	BMEVEKTAGE1	3	2/0/1								p
Statics	BMEGEMMAGM1	3	1/1/0								p
	Total credits:	**29**									
2nd Semester, Spring											
Compulsory English II.	BMEGT63A302	2		0/4/0							p
Materials Science and Testing	BMEGEMTAGA1	6		3/1/1							e
Fundamentals of CAD	BMEGEGEA3CD	4		1/0/2							p
Physics A2	BMETE15AX02	2		2/0/0							e
Fundamentals of Machine Design	BMEGEGEAGM1	4		2/2/0							p
Mathematics A2a - Vector Functions	BMETE90AX02	6		4/2/0							e
Software Engineering	BMEGERIA32P	2		0/2/0							p
Strength of Materials	BMEGEMMAGM2	5		2/2/0							e
	Total credits:	**31**									
3rd Semester, Fall											
Dynamics	BMEGEMMAGM3	5			2/2/0						e
Materials Engineering	BMEGEMTAGA2	4			2/1/1						e
Physics A3	BMETE15AX03	2			2/0/0						p
Machine Elements 1.	BMEGEGEAGG1	5			2/1/1						e
Environmental Management Systems	BMEGT42A003	3			3/0/0						p
Mathematics A3 for Mechanical Engineers	BMETE90AX10	4			2/2/0						p
Mathematics Global Exam	BMETE90AX23										ge
Analysis of Technical and Economical Data	BMEGEVGAG14	3			2/1/0						p
Measurement Technology	BMEGEMIAMG1	3			2/0/1						p
	Total credits:	**29**									
4th Semester, Spring											
Basics of Electrical Engineering	BMEVIAUA007	3				2/0/1					p
Machine Elements 2.	BMEGEGEAGG2	6				3/1/1					e
Manufacturing	BMEGEGTAG01	5				2/0/3					e
Fluid Mechanics	BMEGEÁTAG11	3				3/1/1					p
Engineering Thermodynamics	BMEGEENAETD	3				2/1/0					p
Polymer Materials Science and Engineering	BMEGEPTAG0P	6				3/0/2					e
Vibrations	BMEGEMMAGM4	3				2/1/0					p
Mechanics Global Exam	BMEGEMMAGM0										ge
	Total credits:	**31**									
5th Semester, Fall											
Electromechanics	BMEVIAUA008	4					2/1/1				e
Control Engineering	BMEGEMIAGEI	4					2/2/0				e
Heat Transfer	BMEGEENAEHK	4					2/2/0				e
Diffusion Processes	BMEGEVÉAG02	2					1/1/0				e
Measurement at Energy and Env. Protection	BMEGEENAG51	3					0/1/2				p
Measurement Technique of Processes	BMEGEVGAG03	2					1/0/1				p
Fundamentals of FEM	BMEGEMMAGM5	3					1/1/1				p
Management and Business Economics	BMEGT20A001	4					4/0/0				p
Business Law	BMEGT55A001	2					2/0/0				p
Optional subject:		2									
Marketing (2 credits) OR	BMEGT20A002						2/0/0				e
Communication Skills - English (2 credits)	BMEGT63A061						0/2/0				e
	Total credits:	**30**									
6th Semester, Spring											
Technical Acoustics and Noise Control	BMEGEÁTAG15	3						2/0/1			e
Fluid Machinery	BMEGEVGAG02	4						2/1/1			e
Heat Engines	BMEGEENAEGK	4						2/1/1			e
Numerical Simulation of Fluid Flows	BMEGEÁTAG06	2						1/0/1			p
Processes and Equipments of Chemical Industry	BMEGEVÉAG03	5						3/2/0			e
Air Pollution, Wastewater and Solid Waste Man.	BMEGEÁTAG04	3						3/0/0			p
Independent Study 1	BMEGEVGAG06	4						0/0/4			p
Optional subject:		4									
Heating (4 credits) OR	BMEGEÉPAG61							3/1/0			e
Manager Communication (2 credits) AND	BMEGT63A081							0/2/0			e
Crosscultural Communication (2 credits)	BMEGT63A091							0/2/0			e
	Total credits:	**29**									

Notations: lecture/practice/laboratory, e - exam, p - practical mark, ge - global exam

Curriculum of B.Sc. Subjects (contd.)

Subject			working hours / week								Requisities
Name	Code	Credits	1	2	3	4	5	6	7	8	
7th Semester, Fall											
Fluid Flow Systems	BMEGEVGAG07	3							2/1/0		p
Energy Processes and Equipments	BMEGEENAG71	5							3/0/2		p
Volumetric Pumps and Compressors	BMEGEVGAG04	2							1/1/0		p
Measurement for Chemical and Env. Proc.	BMEGEVÉAG04	3							0/1/2		p
Final Project	BMEGEXXA4SD	15							0/10/0		p
Optional subject:		4									
Air-conditioning (4 credits)	BMEGEÉPAG62								2/2/0		p
	Total credits:	**32**									

The Faculty of Mechanical Engineering offers additional and optional courses (30 credits - upgrade 240) on BSc level to its students to take.

Optional subjects											
Modeling of Processes and Equipment	BMEGEÉEAG01	3							1/1/0	p	
Laboratory	BMEGEÉEAG00	5							0/0/4	p	
Independent Study 2	BMEGEVGAIP2	8							0/0/8	p	
Heating	BMEGEÉPAG61	4							3/1/0	e	
Manager Communication	BMEGT63A081	2							0/2/0	e	
Crosscultural Communication	BMEGT63A091	2							0/2/0	e	
English for Engineers	BMEGT63A051	2							0/4/0	e	
Analytical Mechanics	BMEGEMMMW01	4							3/0/0	e	
Advanced Fluid Mechanics	BMEGEÁTMW01	4							3/0/0	e	
Advanced Thermodynamics	BMEGEENMWAT	4							2/1/0	e	

e - exam, p - practical mark, ge - global exam

Curriculum of M.Sc. Subjects

Subject	Beginning: spring				Beginning: fall			
Name	1	2	3	4	1	2	3	4
Mechanical Engineering Modeling								
Basic Subjects								
Differential Equations and Numerical Methods	4/2/0/8/e					4/2/0/8/e		
Laser Physics		3/1/0/4/e			3/1/0/4/e			
Analytical Mechanics	3/0/0/4/e					3/0/0/4/e		
Advanced Fluid Mechanics	3/0/0/4/e					3/0/0/4/e		
Advanced Thermodynamics	2/1/0/4/e					2/1/0/4/e		
Electronics		2/0/1/4/e			2/0/1/4/e			
Advanced Control and Informatics		2/1/0/4/e			2/1/0/4/e			
Special Compulsory Subjects								
Machine Design and Production Technology		2/1/0/4/e			2/1/0/4/e			
Major Compulsory Subject I		3/0/1/5/p			3/0/1/5/p			
Major Compulsory Subject II	2/1/0/5/p					2/1/0/5/p		
Major Project			0/0/11/14/p					0/0/11/14/s
Special Subjects								
Major Elective Subject I			1/0/2/3/e					1/0/2/3/e
Major Elective Subject II				1/0/1/3/e		1/0/1/3/e		
Major Elective Subject III				1/1/0/3/p		1/1/0/3/p		
Minor Compulsory Subject I	3/0/1/5/p					3/0/1/5/p		
Minor Compulsory Subject II		2/1/0/5/p			2/1/0/5/p			
Minor Elective Subject I			1/0/1/3/e					1/0/1/3/e
Minor Elective Subject II			2/0/0/3/p					2/0/0/3/p
Final Project				0/0/15/19/s		0/0/15/19/s		
Subjects in Economics								
Management		3/0/0/5/p			3/0/0/5/p			
Marketing			3/0/0/5/p					3/0/0/5/p
Elective Subjects								
Further Elective Subjects			1/1/0/3/p	1/0/1/3/p			1/0/1/3/p	1/1/0/3/p
Criterion								
Industrial Practice								
Total								
Total credit points	30	31	31	28	31	30	28	31
Total contact hours	17/4/1/22	17/4/2/23	8/0/15/23	3/2/16/21	17/4/2/23	17/4/1/223	2/16/21	8/0/15/23
Number of Exams	4	4	2	1	4	4	1	2
Fluid Mechanics								
Basic Subjects								
Advanced Fluid Mechanics	3/0/0/4/e					3/0/0/4/e		
Special subjects / Major or Minor Compulsory Subjects								
Computational Fluid Dynamics		2/2/0/5/p			2/2/0/5/p			
Flow Measurements	2/1/1/5/p					2/1/1/5/p		
Major Project			0/0/11/14/p					0/0/11/14/s
Special subjects / Major or Minor Elective Subjects								
Large-Eddy Simulation in Mechanical Engineering			1/1/0/3/ p					1/1/0/3/p
Fluid Technical Process Modeling			2/0/0/3/p					2/0/0/3/p
Multiphase and Reactive Flow Modeling			1/1/0/3/p					1/1/0/3/p
Unsteady Flows in Pipe Networks			2/0/0/3/p					2/0/0/3/p
Measurement Techniques and Signal Processing			2/0/0/3/p					2/0/0/3/p
Building Aerodynamics			2/0/1/3/p			2/0/1/3/p		
Aerodynamics and its Application for Vehicles			2/0/0/3/p			2/0/0/3/p		
Advanced Technical Acoustics and Measurement Techniques			2/0/0/3/p			2/0/0/3/p		
Hemodynamics			2/0/0/3/p			2/0/0/3/p		
Flow Stability			2/0/0/3/p			2/0/0/3/p		
Theoretical Acoustics			2/0/0/3/p			2/0/0/3/p		
Final Project				0/0/15/19/s		0/0/15/19/s		
Solid Mechanics								
Basic Subjects								
Analytical Mechanics	3/0/0/4/e					3/0/0/4/e		
Special subjects / Major or Minor Compulsory Subjects								
Finite Element Analysis	2/0/2/5/p					2/0/2/5/p		
Continuum Mechanics		2/1/0/5/p			2/1/0/5/p			
Major Project			0/0/11/14/p					0/0/11/14/s
Special subjects / Major or Minor Elective Subjects								
Elasticity and Plasticity			1/1/0/3/p					1/1/0/3/p
Nonlinear Vibrations			1/1/0/3/e					1/1/0/3/e
Coupled Problems in Mechanics			1/0/1/3/p					1/0/1/3/p
Mechanisms				1/1/0/3/p		1/1/0/3/p		
Beam Structures				1/1/0/3/e		1/1/0/3/e		
Experimental Methods in Solid Mechanics				1/0/1/3/p		1/0/1/3/p		
Final Project				0/0/15/19/s		0/0/15/19/s		

e - exam, p - practical mark, ge - global exam

Curriculum of M.Sc. Subjects

Subject	Beginning: spring				Beginning: fall			
Name	1	2	3	4	1	2	3	4
Themal Engineering								
Basic Subjects								
Advanced Thermodynamics	2/1/0/4/e				2/1/0/4/e			
Special subjects / Major or Minor Compulsory Subjects								
Combustion Technology		2/1/1/5/p			2/1/1/5/p			
Measurements in Thermal Engineering	1/0/3/5/p					1/0/3/5/p		
Major Project			0/0/11/14/p					0/0/11/14/s
Special subjects / Major or Minor Elective Subjects								
Energy Conversion Processes and its Equipment			2/1/0/3/e					2/1/0/3/e
Simulation of Energy Engineering Systems			1/0/2/3/p					1/0/2/3/p
Thermal Physics			2/0/1/3/p					2/0/1/3/p
Thermo-Mechanics				2/0/1/3/p			2/0/1/3/p	
Steam and Gas Turbines				2/1/0/3/p			2/1/0/3/p	
Thermo-Hydraulics				2/1/0/3/e			2/1/0/3/e	
Final Project				0/0/15/19/s			0/0/15/19/s	
Design and Technology								
Special subjects / Major or Minor Compulsory Subjects								
Machine Design and Production Technology		2/1/0/4/e			2/1/0/4/e			
Product Modeling		2/0/1/5/p			2/0/1/5/p			
Advanced Manufacturing	1/0/3/5/p					1/0/3/5/p		
Major Project			0/0/11/14/p					0/0/11/14/s
Special subjects / Major or Minor Elective Subjects								
CAD Technology			1/0/2/4/p					1/0/2/4/p
Materials Science			2/0/0/3/e					2/0/0/3/e
Structural Analysis			1/0/2/4/p					1/0/2/4/p
Process Planning				1/1/0/3/p			1/1/0/3/p	
NC Machine Tools				1/1/0/3/p			1/1/0/3/p	
Fatigue and Fracture				2/0/0/3/e			2/0/0/3/e	
Final Project				0/0/15/19/s			0/0/15/19/s	
Industrial Electronics								
Basic Subjects								
Electronics		2/0/1/4/e			2/0/1/4/e			
Special subjects / Major or Minor Compulsory Subjects								
Power Electronics		2/0/1/5/p			2/0/1/5/p			
Motion Control	2/0/1/5/p					2/0/1/5/p		
Special subjects / Major or Minor Elective Subjects								
Analog Electronics			1/0/2/3/p					1/0/2/3/p
Digital Electronics			1/0/2/3/p					1/0/2/3/p
Real Time Systems			1/0/2/3/p					1/0/2/3/p
Programmable Digital Devices				1/0/1/3/p			1/0/1/3/p	
Industrial Vision Systems				1/0/1/3/p			1/0/1/3/p	
Web Based Laboratory				1/0/1/3/p			1/0/1/3/p	
Industrial Embedded Systems				1/0/1/3/p			1/0/1/3/p	
Robotics								
Basic subjects								
Advanced Control and Informatics		2/1/0/4/e			2/1/0/4/e			
Special subjects / Major or Minor Compulsory Subjects								
Robot Constructions		2/0/1/5/p			2/0/1/5/p			
Robot Control	2/1/0/5/p					2/1/0/5/p		
Major Project			0/0/11/14/p					0/0/11/14/s
Special subjects / Major or Minor Elective Subjects								
Production Planning and Control			3/0/0/3/e					3/0/0/3/e
Software Technologies			2/0/1/3/p					2/0/1/3/p
Artificial Neural Networks and Hybrid Systems			1/1/0/3/e					1/1/0/3/e
Robot Programming			1/0/2/3/p					1/0/2/3/p
Simulation of CNC Machines and Robots				2/0/0/3/p			2/0/0/3/p	
Assembly				1/1/1/3/p			1/1/1/3/p	
Special Robots and Robot Applications				1/1/0/3/p			1/1/0/3/p	
Microelectronics in Control				1/1/0/3/p			1/1/0/3/p	
Final Project				0/0/15/19/s			0/0/15/19/s	

e - exam, p - practical mark, ge - global exam

Graduation Speech

Good morning everybody, it's so good to see yall here today. First of all, I would like to welcome yall, and thank all my colleagues, their families, a few teachers and supporters for attending. As we all know, this is a very special day for us, the day when me and my fellow students can finally stand up with that fulfilling knowledge and declare to the world, "I've done it! I've made it!" I have succeeded at one of the finest, oldest, most prestigious schools in all of Europe.

Now, for some this may have been a bit easier than for others; and when we look around it's still fresh in our minds, our classmates, that have been stuck behind. For some these past 4 years have just been a continuation of what we know and love; learning, picking up the pace. But, for others this transition has given us the much needed opportunity to discern our true selves. Looking around we can all realize the bold image we strike as foreigners. And, as I know it can be quite an uncomfortable shock to wake up one day and realize you're not at home. And sometimes this change can become detrimental. It is with a sad eye that we have watched our colleagues drop year by year. These were the unfortunate ones who were not able to overcome the obstacles or are still working at it. But, on a happier note we have not only demonstrated that we are capable of learning and excelling in our regions of expertise, we have proven to ourselves that no wall is too high to climb. And it's a great feeling, looking around and seeing your familiar faces and laughing at the memory of when we first started at this university and how much we've all changed.

Budapest Muszaki Egyetem. A forever emblazoned icon in our future lives. From coming together as strangers, to learning one another's names, working on group projects, drinking beer at the pubs, rushing to make it to that class you almost overslept, trying to learn Hungarian, meeting pretty Hungarian girls, hanging out on campus, soccer games with the Erasmus students, trying to understand different accents, wondering if you passed that test that you studied for, wondering if you passed that test you didn't study for, exam periods, afterhours, party time, study time, sleep time, getting lost in the K building, labs, funny teachers, lame lab reports, freedom. : Now, after 4 years it is with satisfaction that we look back upon our blunders and laugh at what we must have looked like to the outside world. A group of novices bronzed and flushed by the heat of youth to a group of adolescents molded, sculpted by the loving and caring hands of our professors and society.

Now, the next step, the next years of our lives. Though, we are not too great in numbers we hold our ground with shining resilience. It is now our obligation to utilize the knowledge we have obtained. And, being the scientists and engineers that we are many of us realize the necessity of furthering our majors. We definitely would love to see the greater many of yall with doctorates and masters, aspiring across the world. With the degree obtained it would be an honor to watch our fellow Nigerians and Cameroonians take home that knowledge and lead Africa to greatness; for you Persians to break out and travel the world; Cypriots, go add to all the advantages you already have; and others like me to go home and excel more than anyone could ever envision. Make use of what you know. In 5-10 years it is my hope that we will see that chemical engineer as myself conjuring new vaccines for illnesses, purifying our petroleum reserves; that famous architect who was our classmate designing the beautiful churches or palaces of the world. That guy across the hall will become the renowned Mechanical engineer designing all kinds of modern technology. All of us have something that we can share, and I truly hope that everyone of yall will take advantage of that wealth you have gained.

With a final word I would once again like to thank all the professors for their patience, cooperation and drive in our learning. Now, I would like everyone to take a look to their right, now your left and remember those faces next to you as an emblem of the once open chapter of our lives. Look forward down the road that we have uncovered for ourselves and prepare for what's to come. Grab the guy behind you, on your side, in front of you; now it's time to celebrate. Let's go party! Grab a bottle of champagne, we did it guys. Congratulations!!

Thank you.

Victoria Mattick

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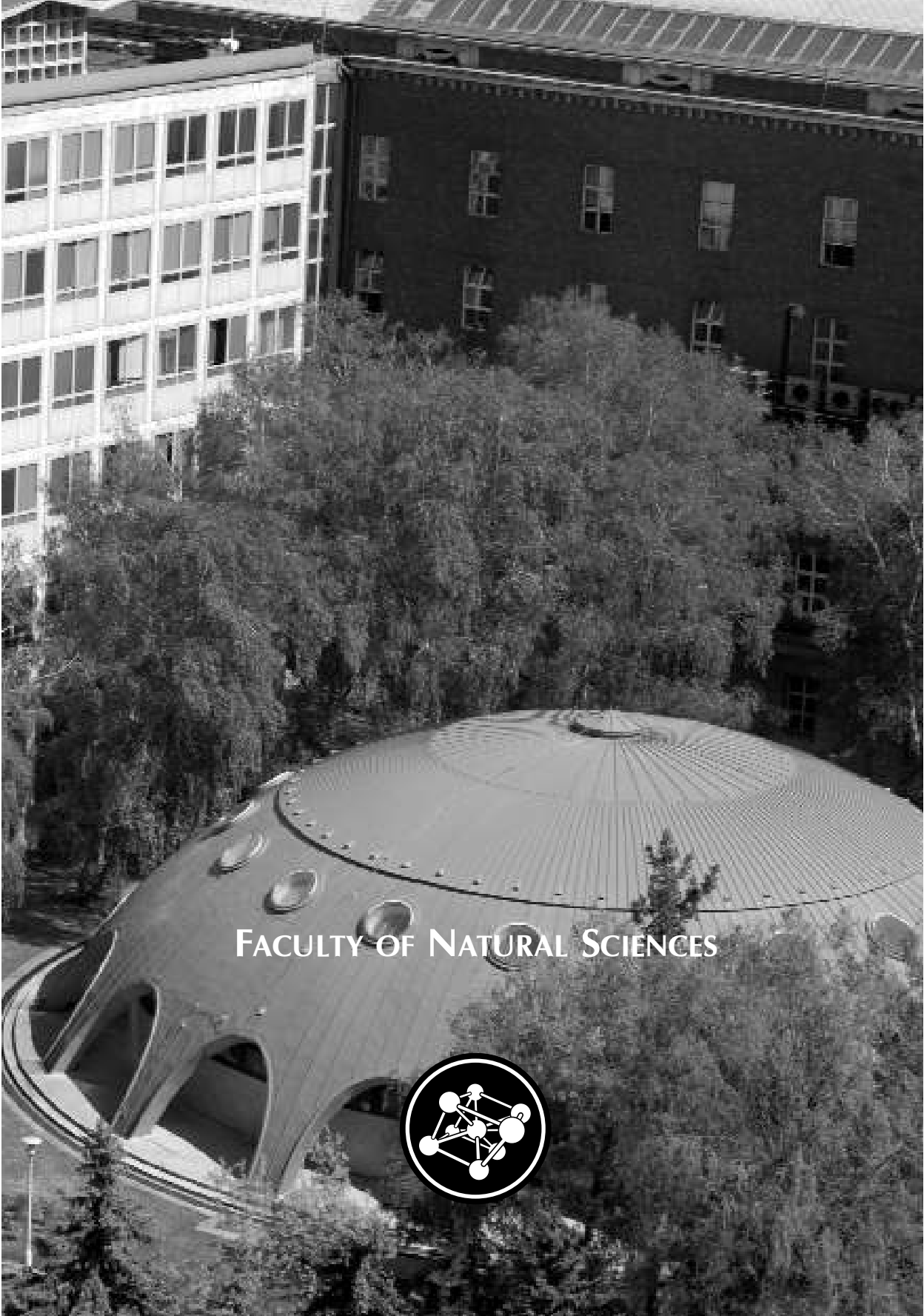
FACULTY OF NATURAL SCIENCES
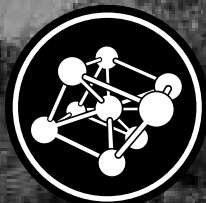
The Faculty of Natural Sciences, one of the newest faculties at the Budapest University of Technology and Economics, was established in 1998 and now employs 196 full and part time faculty members. The Faculty provides classes in Physics, Mathematics and Cognitive Science and is designed to meet the needs of its own and other faculties.

Courses are offered on BSc and MSc/MA degree levels. The Faculty offers post-graduate scientific training as well. Currently more than 65 PhD students are pursuing personal programs in different areas of sciences. The Faculty also offers short courses on specific topics of current interest.

The Faculty of Natural Sciences administers its own BSc and MSc/MA programs in Physics, Mathematics, Applied Mathematics and Cognitive Science. A continuing educational program is also offered in Reactor Physics and Reactor Technology. For many years the "Eugene Wigner International Training Course for Reactor Physics Experiments" has also been organized on a yearly basis.

The **BSc in Physics Program,** a traditional curriculum, leads to a BSc degree in 6 semesters (currently available only in Hungarian). The facilities and scientific-tutorial background of the Institute of Physics and the Institute of Nuclear Techniques offer unique opportunities in areas like low temperature physics, acousto-optics, holography or the nuclear training reactor. A further advantage of our Physics BSc Program is the engineering background provided by the Budapest University of Technology and Economics. Two specializations are offered: "Physicist" and "Applied Physics".

In another 4 semesters an **MSc in Physics** degree can be earned; courses are given also in English. This program provides comprehensive knowledge, built upon strong theoretical and experimental bases in four areas of specialization. Students who chose the specialization "Research Physicist" get acquainted with theoretical tools of modern physics and with state of the art experimental methods. Students in specialization "Applied Physics" study material testing techniques, material science, optics and R&D skills. Graduates from specialization "Nuclear Techniques" may become professionals in energetics, radiation and environment protection. The specialization "Medical Physics" transfers knowledge of creative use and development of modern medical instruments.

The **BSc in Mathematics Program,** a traditional curriculum, leads to a BSc degree in 6 semesters (currently available only in Hungarian). In the fourth semester students are offered two options: specialization "A" Theoretical Mathematics is recommended for those who are interested in developing a deeper understanding of some branches of mathematics and in doing theoretical research and are probably going to continue their studies in a Mathematics MSc Program. Specialization "B" Applied Mathematics is recommended for students who are eager to apply their knowledge in industry or finance. Therefore, we have prepared courses that are related to information technology, economical and financial mathematics, or technology. Students graduating from either specialization are allowed to continue their studies in one of our Mathematics Master programs.

In another 4 semesters an MSc in Mathematics or MSc in Applied Mathematics degree can be earned.

There are no specializations in the **MSc in Mathematics Program**. Basic subjects are algebra and number theory, mathematical analysis, geometry, probability theory and statistics, discrete mathematics and operation research.

Students of the **MSc in Applied Mathematics Program** choosing the "Applied Analysis" specialization will meet applications of mathematical analysis in natural sciences, finance and industry. Graduates from the "Operational Research" specialization are able to create models for problems in controlling systems or optimization. Students who specialized in "Financial Mathematics" can analyze financial processes or insurance problems and are able to interpret the results. Graduates from the "Stochastics" specialization can recognize and study random laws in various phenomena.

MA in Cognitive Science. The aim of the master program is to train researchers skilled complex analysis of human cognition and knowledge relying on the methods of science. Students may complete courses in all major domains of cognitive science including cognitive psychology, neurosciense, linguistics and the philosophy of science. Students will be equipped with both theoretical knowledge and practical skills such as statistical analysis and research ethics. Graduates will be able to carry out research in various areas of cognitive science combining theoretical insights and methods of biological (neuroscience, experimental psychology, developmental studies), and formal (mathematics, logic, philosophy of science, linguistics) disciplines. Graduates' competences allow them to undertake doctoral studies, and to work in variety of applied domains including medicine, biotechnology and education.

Continuing educational program in reactor physics and technology is a four semester program offered to professionals working in the nuclear industry. The subjects include reactor physics, thermohydraulics, radiation protection, radiochemistry, reactor technology, nuclear safety and laboratory experiments.

The **"Eugene Wigner International Training Course for Reactor Physics Experiments"** is a three weeks long international course, in cooperation with the Technical University Bratislava, Technical University Prague and Atominstitute of the Austrian University Vienna. The language of the course is English. The main organizer of the course is the Institute of Nuclear Techniques. For more information see:

http://www.reak.bme.hu/nti/Education/Wigner_Course

Institutes

Institute of Mathematics
 Department of Algebra
 Department of Analysis
 Department of Differential Equations
 Department of Geometry
 Department of Stochastics

Institute of Nuclear Techniques
 Department of Nuclear Techniques
 Department of Nuclear Energy

Institute of Physics
 Department of Atomic Physics
 Department of Physics
 Department of Theoretical Physics

Department of Cognitive Science

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Dean of the Faculty: Dr. János Pipek
Vice-Deans of the Faculty: Dr. Ilona Kovács,
Dr. Márta Lázi, Dr. András Vetier
Course director of educational program in reactor
physics and technology: Dr. Bálint Szabó

Curriculum of MSc in Physics

Subject			Credits / semester				Requisites
Name	Code	Credit	1	2	3	4	
General Subjects							
Problem Solving in Mathematics	BMETE95MF00	2	0/2/0/m/2				
Computer Solution of Technical and Physical Problems	BMETE12MF01	2	0/0/2/m/2				
Investment		2		2/0/0/m/2			
Professional subjects							
Atomic and molecular physics	BMETE15MF02	3	2/1/0/m/3				
Physical materials science	BMETE12MF02	3		2/0/0/m/3			
Nuclear physics	BMETE80MF00	4		3/0/0/e/4			
Particle physics	BMETE13MF00	4			4/0/0/e/4		
Computer simulation in statistical physics	BMETE15MF03	3	2/0/0/e/3				
Physics laboratory	BMETE80MF06	6	0/0/6/m/6				
Specialized professional subjects							
Seminar I-IV	BMETE12MF04-07	6	0/2/0/m/2	0/2/0/m/2	0/2/0/m/2	0/2/0/s/0	
Independent laboratory I-II	BMETE12MF08-09	19		0/0/7/m/7	0/0/12/m/12		
Specialization courses		30	7/0/0/e/10	7/0/0/e/10	7/0/0/e/10		
Diploma work	BMETE80MF10	30				0/0/10/e/30	
Freely elected courses							
Freely elected courses I-III		6	2/0/0/m/2	2/0/0/m/2	2/0/0/m/2		
Electable language courses							
Foreign language			0/4/0/s/0	0/4/0/s/0			

Lecture/Practice/Laboratory/Exam type/Credit
Exam type: e=exam, m=midterm exam, s=signature

Curriculum of MSc in Mathematics

Subject			Credits / semester				Requisites
Name	Code	Credit	1	2	3	4	
Theoretical foundations A							
Algebra and Number theory block							
Linear algebra		7	4/4/0/e+m/7				
Number theory		5	2/2/0/e+m/5				
Algebra 1		4		2/2/0/e/4			
Algebra 2				2/2/0/e/4			
Analysis block							
Analysis 1, 2		12	4/2/0/e+m/6	4/2/0/e/6			
Analysis 3, 4		7	2/2/0/e+m/5	1/1/0/m/2			
Differential equations		6		4/2/0/e/6			
Partial differential equations		5		2/2/0/m/5			
Numerical methods 1.		6	4/2/0/e/6				
Functional analysis		3		4/2/0/e+m/6			
Discrete mathematics and computer science block							
Combinatorics and graph theory 1, 2		7	2/2/0/e/4	2/1/0/e/3			
Theory of algorithms		4	2/2/0/e/4				
Criptography and coding theory		3		3/0/0/e/3			
Informatics 2		3	1/0/2/m/3				
Informatics 4		4	0/0/4/m/4				
Geometry block							
Geometry		6		4/2/0/e+m/6			
Differential geometry 1		3	2/1/0/m/3				
Differential geometry 2		5	2/2/0/e+m/5				
Operations research and financial mathematics block							
Operations research		4		2/2/0/m/4			
Optimization models		2	0/0/2/m/2				
Introduction to macro/microeconomics		4	2/2/0/m/2	2/2/0/m/2			
Mathematics of economics and finance		6		2/2/0/e/6			
Insurance mathematics 1		3		2/0/0/e/3			
Stochastics block							
Probability theory		4	2/2/0/e+m/4				
Mathematical statistics		6		2/0/4/e/6			
Stochastic processes		6	2/2/0/e/6				
Ergodic theory and dynamical systems		2		2/0/0/m/2			
Biomathematics block							
Stochastic models in bioinformatics		3		2/0/0/e/3			
Dynamical models in biology		2	2/0/0/e/2				

Curriculum of MSc in Mathematics (Contd.)

Subject			Credits / semester				Requisites
Name	**Code**	**Credit**	**1**	**2**	**3**	**4**	
Primary body of professional subjects							
Algebra and Number theory block							
Commutative algebra and algebraic geometry		5	3/1/0/m/5				
Group theory		5				3/1/0/e/5	
Analysis block							
Dynamical systems		5				3/1/0/e/5	
Fourier analysis and function series		5			3/1/0/e/5		
Partial differential equations 2		5				3/1/0/m/5	
Discrete mathematics block							
Theoretical computer science		5				3/1/0/m/5	
General and algebraic combinatorics		5			3/1/0/m/5		
Combinatorial optimization		5		3/1/0/e/5			
Geometry block							
Differential geometry and topology		5			3/1/0/e/5		
Representation theory		5		3/1/0/m/5			
Operations research block							
Linear programming		5	3/1/0/e/5				
Global optimization		5		3/1/0/m/5			
Stochastics block							
Stochastic analysis and applications		5	3/1/0/e/5				
Statistics and information theory		5				3/1/0/m/5	
Professional subjects of specialization							
Professional subjects of specialization, Algebra block							
Representation theory of rings and groups		5		3/1/0/m/5			
Advanced linear algebra		3			2/0/0/e/3		
Homological algebra		2			2/0/0/m/2		
Professional subjects of specialization, Analysis block							
Matrix analysis		3	2/0/0/e/3				
Operator theory		5			3/1/0/e/5		
Potential theory		3		2/0/0/m/3			
Inverse scattering problems		3				2/0/0/e/3	
Fractals and geometric measure theory				2/0/0/m/3			
Nonlinear hyperbolic equations		3	2/0/0/e/3				
Professional subjects of specialization, Discrete mathematics block							
Algorithms and their complexity		5		3/1/0/m/5			
Graphs, hypergraphs and their applications		5	3/1/0/m/5				
Professional subjects of specialization, Geometry block							
Projective geometry		5	3/1/0/m/5				
Combinatorial and discrete geometry		5				3/1/0/m/5	
Noneuclidean geometry		5			3/1/0/m/5		
Professional subjects of specialization, Operations research block							
Nonlinear programming		5		3/1/0/e/5			
Stochastic programming		5				3/1/0/e/5	
Professional subjects of specialization, Number theory block							
Algebraic number theory		3		2/0/0/e/3			
Analytical number theory		2		2/0/0/m/2			
Algebraic and arithmetical algorithms		5	3/1/0/m/5				
Professional subjects of specialization, Stochastics block							
Markov processes and martingales		5	3/1/0/e/5				
Stochastic differential equations		5		3/1/0/e/5			
Limit and large deviation theorems of probab.		5			3/1/0/e/5		
Stochastic models		2		2/0/0/m/2			
Advanced dynamical systems		2		2/0/0/m/2			
Statistics softwares 2		2				0/0/2/m/2	
Others							
Individual projects 1, 2		4		0/0/4/m/4	0/0/4/m/4		
Optional subjects in economy or social sciences		2		2/0/0/m/2			
Mathematical modelling 1, 2		1	2/0/0/m/1		2/0/0/m/1		
Optional subjects		8		3/0/0/e/3	5/0/0/e+m/5		
Diploma thesis					2/0/0/5	8/0/0/15	
SUM hours/credits			**26/30**	**25/30**	**25/30**	**20/30**	

Lecture/Practice/Laboratory/Exam type/Credit
Exam type: e=exam, m=midterm exam, s=signature

Curriculum of MSc in Applied Mathematics
Specialization in Applied Analysis

Subject			Credits / semester				Requisites
Name	Code	Credit	1	2	3	4	
Theoretical foundations							
Analysis 3		6	3/3/0/e+m/6				
Analysis 4		2		1/1/0/m/2			
Functional analysis		6		4/2/0/e+m/6			
Partial differential equations		5	2/2/0/e/6				
Numerical methods		6	4/2/0/e/6				
Functional analysis		3		4/2/0/e+m/6			
Differential geometry		6		3/2/0/e+m/5			
Primary body of professional subjects							
Theoretical computer science		5				3/1/0/m/5	
General and algebraic combinatorics		5			3/1/0/m/5		
Commutative algebra and algebraic geom.		5	3/1/0/m/5				
Representation theory		5		3/1/0/m/5			
Differential geometry and topology		5			3/1/0/e/5		
Dynamical systems *		5				3/1/0/e/5	
Fourier analysis and function series *		5			3/1/0/e/5		
Partial differential equations 2 *		5				3/1/0/m/5	
Stochastic analysis and applications		5	3/1/0/e/5				
Statistics and information theory		5				3/1/0/m/5	
Global optimization		5		3/1/0/m/5			
Linear programming		5	3/1/0/e/5				
Professional subjects of specialization							
Biomathematics		2		2/0/0/m/2			
Mathematical methods of classical mechanics		2				2/0/0/m/2	
Numerical methods 2.		5	2/0/2/e/5				
Wavelet analysis		2	2/0/0/m/2				
Matrix analysis		3	2/0/0/e/3				
Mathematical chemistry		5		2/0/2/e/5			
Operator theory		5			3/1/0/e/5		
Potential theory		3		2/0/0/m/3			
Inverse scattering problems		3				2/0/0/e/3	
Fractals and geometric measure theory				2/0/0/m/3			
Nonlinear hyperbolic equations		3	2/0/0/e/3				
Others							
Individual projects 1, 2		4		0/0/4/m/4	0/0/4/m/4		
Optional subjects in economy or social sciences		2		2/0/0/m/2			
Mathematical modelling 1, 2		1	2/0/0/m/1		2/0/0/m/1		
Optional subjects		8		3/0/0/e/3	5/0/0/e+m/5		
Diploma thesis					2/0/0/5	8/0/0/15	
SUM hours/credits			**26/30**	**25/30**	**25/30**	**20/30**	

Lecture/Practice/Laboratory/Exam type/Credit
Exam type: e=exam, m=midterm exam, s=signature
*The courses marked by * are mandatory for the students who choose this specialization.*

Curriculum of MSc in Applied Mathematics
Specialization in Operational Research

Subject			Credits / semester				Requisites
Name	Code	Credit	1	2	3	4	
Theoretical foundations							
Theory of algorithms		4	2/2/0/e/4				
Numerical methods 1		6	4/2/0/e/6				
Informatics 4		4		0/0/4/m/4			
Stochastic processes		6	2/2/0/e/6				
Mathematical statistics		5		2/2/0/e/5			
Introduction to macroeconomics		2	2/0/0/m/2				
Introduction to microeconomics		2		2/0/0/m/2			
Financial mathematics		6		2/2/0/e/6			
Operations research		4	2/2/0/m/4				
Optimization models		2	0/0/2/m/2				
Primary body of professional subjects							
Theoretical computer science		5				3/1/0/m/5	
General and algebraic combinatorics		5			3/1/0/m/5		
Commutative algebra and algebraic geom.		5	3/1/0/m/5				
Representation theory		5		3/1/0/m/5			
Differential geometry and topology		5			3/1/0/e/5		
Dynamical systems		5				3/1/0/e/5	
Fourier analysis and function series		5			3/1/0/e/5		
Partial differential equations 2		5				3/1/0/m/5	
Stochastic analysis and applications		5	3/1/0/e/5				
Statistics and information theory *		5				3/1/0/m/5	
Global optimization *		5		3/1/0/m/5			
Linear programming *		5	3/1/0/e/5				
Professional subjects of specialization							
Nonlinear programming		5		3/1/0/e/5			
Combinatorial optimization		5		3/1/0/e/5			
Stochastic programming		5				3/1/0/e/5	
Softwares in operations research		2	0/0/2/m/2				
Control systems		3	2/0/0/m/3				
Introduction to the economic dynamics		5			3/1/0/e/5		
Game theory		3			2/0/0/m/3		
Econometry		2			0/0/2/m/2		
Others							
Individual projects 1, 2		4		0/0/4/m/ 4	0/0/4/m/ 4		
Optional subjects in economy or social sciences		2			2/0/0/m/2		
Mathematical modelling 1, 2		1	2/0/0/m/1		2/0/0/m/1		
Optional subjects		8		3/0/0/e/3	5/0/0/e+m/5		
Diploma thesis					2/0/0/5	8/0/0/15	
SUM hours/credits			**26/30**	**25/30**	**25/30**	**20/30**	

Lecture/Practice/Laboratory/Exam type/Credit
Exam type: e=exam, m=midterm exam, s=signature
*The courses marked by * are mandatory for the students who choose this specialization.*

Curriculum of MSc in Applied Mathematics
Specialization in Financial Mathematics

Subject			Credits / semester				Requisites
Name	Code	Credit	1	2	3	4	
Theoretical foundations [A]							
Analysis 3		6	3/3/0/e+m/6				
Analysis 4		2		1/1/0/m/2			
Functional analysis		6		4/2/0/e+m/6			
Partial differential equations		5	2/2/0/e/6				
Stochastic processes		6	2/2/0/e/6				
Insurance mathematics		3		2/0/0/e/3			
Introduction to macroeconomics		2	2/0/0/m/2				
Introduction to microeconomics		2		2/0/0/m/2			
Financial mathematics		6		2/2/0/e/6			
Statistical softwares 1		2	0/0/2/m/2				
Stochastic models in bioinformatics		3		2/2/0/m/3			
Primary body of professional subjects							
Theoretical computer science		5				3/1/0/m/5	
General and algebraic combinatorics		5			3/1/0/m/5		
Commutative algebra and algebraic geom.		5	3/1/0/m/5				
Representation theory		5		3/1/0/m/5			
Differential geometry and topology		5			3/1/0/e/5		
Dynamical systems		5				3/1/0/e/5	
Fourier analysis and function series		5			3/1/0/e/5		
Partial differential equations 2		5				3/1/0/m/5	
Stochastic analysis and applications*		5	3/1/0/e/5				
Statistics and information theory*		5				3/1/0/m/5	
Global optimization		5		3/1/0/m/5			
Linear programming *		5	3/1/0/e/5				
Professional subjects of specialization							
Professional subjects of specialization Statistics block							
Nonparametric statistics		3				2/0/0/e/3	
Statistical softwares 2		2				0/0/2/m/2	
Professional subjects of specialization Stochastic systems block							
Markov processes and martingales		5	3/1/0/e/5				
Stochastic differential equations		5		3/1/0/e/5			
Financial processes		3		2/0/0/m/3			
Dynamical programming in financial mathematics					2/0/0/e/3		
Individual projects 1 (in stoch. Mathematics)		4		0/0/4/m/4			
Professional subjects of specialization Economy sciences block							
Extreme value theory		5			3/1/0/e/5		
Insurance mathematics 2		2		2/0/0/m/2			
Analysis of financial time series					0/0/2/m/2		
Multivariate statistics with applications		5				2/0/0/m/2	
Individual projects 2 (in math. economy)		4			0/0/4/m/4		
Others							
Optional course in economy or social sciences		2			2/0/0/m/2		
Mathematical modelling 1, 2		1	2/0/0/m/1		2/0/0/m/1		
Optional subjects		8		3/0/0/e/3	5/0/0/e+m/5		
Diploma thesis					2/0/0/5	8/0/0/15	
SUM hours/credits			**26/30**	**25/30**	**25/30**	**20/30**	

Lecture/Practice/Laboratory/Exam type/Credit
Exam type: e=exam, m=midterm exam, s=signature
*The courses marked by * are mandatory for the students who choose this specialization.*

Curriculum of MSc in Applied Mathematics
Specialization in Stochastics

Name	Code	Credit	1	2	3	4	Requisites
Theoretical foundations ^							
Analysis 3		6	3/3/0/e+m/6				
Analysis 4		2		1/1/0/m/2			
Functional analysis		6		4/2/0/e+m/6			
Partial differential equations		5	2/2/0/e/6				
Stochastic processes		6	2/2/0/e/6				
Insurance mathematics		3		2/0/0/e/3			
Mathematics of economy and finance		6		2/2/0/e/6			
Mathematical Statistics		2		2/0/0/e/3			
Stochastic models in bioinformatics		3		2/2/0/m/3			
Primary body of professional subjects							
Theoretical computer science		5				3/1/0/m/5	
General and algebraic combinatorics		5			3/1/0/m/5		
Commutative algebra and algebraic geom.		5	3/1/0/m/5				
Representation theory		5		3/1/0/m/5			
Differential geometry and topology		5			3/1/0/e/5		
Dynamical systems		5				3/1/0/e/5	
Fourier analysis and function series		5			3/1/0/e/5		
Partial differential equations 2*		5				3/1/0/m/5	
Stochastic analysis and applications*		5	3/1/0/e/5				
Statistics and information theory*		5				3/1/0/m/5	
Global optimization		5		3/1/0/m/5			
Linear programming		5	3/1/0/e/5				
Professional subjects of specialization							
Professional subjects of specialization Statistics block							
Multivariate statistics with applications		5			3/1/0/e/5		
Nonparametric statistics		3				2/0/0/e/3	
Statistical softwares 2		2				0/0/2/m/2	
Professional subjects of specialization Stochastic block							
Markov processes and martingales		5	3/1/0/e/5				
Stochastic differential equations		5		3/1/0/e/5			
Financial processes		3		2/0/0/m/3			
Others							
Limit and large deviation theorems of probab.		5			3/1/0/e/5		
Stochastic models***		2		2/0/0/m/2			
Advanced dynamical systems***		2		2/0/0/m/2			
Individual projects 1, 2		4		0/0/4/m/4	0/0/4/m/4		
Optional subjects of economy or social sci.		2		2/0/0/m/2			
Mathematical modelling 1, 2		1	2/0/0/m/1		2/0/0/m/1		
Optional subjects				3/0/0/e/3	5/0/0/e+m/5		
Diploma thesis					2/0/0/5	8/0/0/15	
SUM hours/credits			**26/30**	**25/30**	**25/30**	**20/30**	

Lecture/Practice/Laboratory/Exam type/Credit
Exam type: e=exam, m=midterm exam, s=signature
The courses marked by * are mandatory for the students who choose this specialization.
One of from the courses marked by *** is mandatory for the students who choose this specialization

Curriculum of MA in Cognitive Science

Subject			Credits / semester				Requisites
Name	Code	Credit	1	2	3	4	
Theoretical foundations [A]							
Neurobiology	BMETE47MC00	5	2/2/0/e/5				
Mathematics	BMETE92MC11	5	2/0/2/e/5				
Informatics	BMETE92MC19	3	2/0/0/m/3				
Statistics and Methodology	BMETE92MC20	5	2/0/2/e/5				
Introduction to Cognitive Science	BMETE47MC01	3	2/0/0/m/3				
Cognitve Psychology 1	BMETE47MC04	3	2/0/0/e/3				
Introduction to Linguistics	BMETE47MC02	3	2/0/0/m/3				
Psycholinguistics	BMETE47MC05	5		2/0/2/e/5			Introduction to Linguistics
Neuropsychology	BMETE47MC06	5		2/0/2/e/5			Neurobiology
Evolutionary Psychology	BMETE47MC07	3		2/0/0/e/3			Introduction to Cognitive Sci.
Epistemology	BMEGT41M410	3		2/0/0/m/3			
Cognitve Psychology 2	BMETE47MC04	5		2/0/2/e/5			
Computer Programming	BMETE47MC08	3		0/2/0/m/3			Informatics
Intelligent Systems	BMEVITMM031	3		2/0/0/m/3			Informatics
Philosophy of Science	BMEGT41M411	3		2/0/0/m/3			
Professional subjects							
Introduction to Cultural Studies	BMEGT43M410	3			2/0/0/e/3		Philosophy of Science
Historical Reconstruction of Sci. Thinking	BMEGT41M413	5			2/2/0/e/5		Philosophy of Science
Cognitive Neuroscience	BMETE47MC11	5			2/0/2/e/5		Neuropsychology
Child Language	BMETE47MC12	5			2/2/0/e/5		Psycholinguistics
Professional subjects of specialization							
Professional subjects of specialization Cognitive Neuroscience block							
Perception and Learning	BMETE47MC13	3			2/0/0/m/3		Neuropsychology
Visual Neuroscience	BMETE47MC14	3			2/0/0/m/3		Neuropsychology
Cognitve Informatics in Human Vision	BMEVITMM032	3			2/0/0/m/3		Informatics
MatLab	BMETE92MC14	3			2/0/0/m/3		Informatics
Professional subjects of specialization Psycholinguistics block							
Pragmatics and Cognitive Linguistics	BMETE47MC15	3			2/0/0/m/3		Introduction to Linguistics
Language Understanding and Production	BMETE47MC16	3			2/0/0/m/3		Psycholinguistics
Aphasia	BMETE47MC17	3			2/0/0/m/3		Psycholinguistics
Speech perception and production	BMEVITMJV62	4			2/2/0/m/4		Psycholinguistics
Professional subjects of specialization Cognitive Models of Science block							
Theory of Science	BMEGT41M412	3			2/0/0/m/3		Philosophy of Science
Philosophy of Mind	BMETE47MC18	3			2/0/0/m/3		Philosophy of Science
Logical Reasoning		3			2/0/0/m/3		Philosophy of Science
Others							
Elective course		3	2/0/0/m/3	2/0/0/m/3			
Research Seminar	BMETE47MC20	10				0/0/10/m/10	Introduction to Cognitive Sci.
Thesis Work	BMETE47MC21	20			0/2/0/m/3	0/20/0/e/20	Introduction to Cognitive Sci.
SUM hours/credits			**22/30**	**22/30**	**22/30**	**30/30**	

Lecture/Practice/Laboratory/Exam type/Credit
Exam type: e=exam, m=midterm exam, s=signature
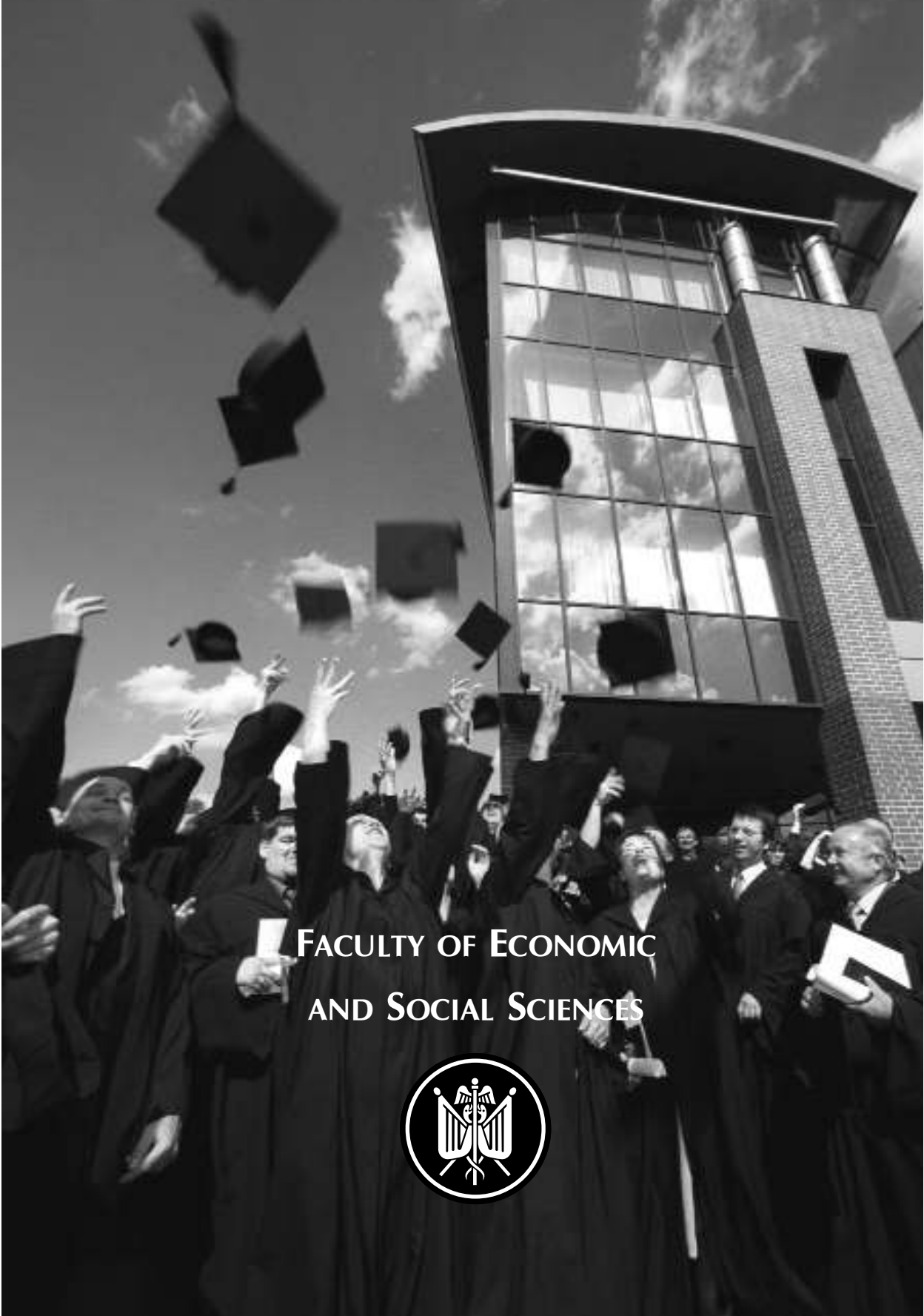
FACULTY OF ECONOMIC
AND SOCIAL SCIENCES

General Information

Based on the long tradition of providing education in the fields of economics, management and social sciences, in 1998 the Budapest University of Technology and Economics established a new faculty, the 'Faculty of Economic and Social Sciences' employing 300 instructors and researchers.

Parallel to the traditional five-year university training, according to the Bologna model the two-cycle system (for BSc and MSc degrees) was introduced in 2006.

The accredited full time degree programs in Economics, Engineering Management, Communication and Media Studies, Teachers Training in Vocational Fields are carried out according to the latest European standards. Besides its own training programs the Faculty co-operates closely with all the engineering faculties of the University providing courses in management, economics, social sciences, languages and physical education.

Additionally the Faculty offers different kinds of post-graduate programs and short-term courses of various types.

Currently more than 100 Ph.D. students are participating in different individual research programs in different areas of economic and social sciences.

The Faculty of Economic and Social Sciences pays special attention to the integration of theoretical and practical knowledge in its curricula and Faculty has established strong professional relationships with the participants of various economic fields (profit and non profit oriented institutions, banks etc).

Educational and Research Activities

The total number of participants of different graduate-, postgraduate and distance learning forms of training launched by the faculty is about 6000. The number of full-time students of basic training of the faculty itself has been increasing. Research is conducted in 2 doctorate (Ph.D.) schools.

Languages, International Studies

Dutch, English, French, German, Italian, Spanish, Russian and Hungarian as a foreign language are taught at levels from A1 to C1 by 80 lecturers and language instructors at BME Centre of Modern Languages. Language instruction for Specific Purposes (LSP) as well as translator and interpreter training are also offered by the Centre.

Students can sit for nationally and internationally accredited general and specific (LSP for Economics or Engineering) language exams at 3 different levels (B1, B2 and C1) at the BME Language Examination Centre.

The teaching staff of the Centre is actively involved in the Hungarian and Central European Studies programme (for detailed description see the section of Hungarian and Central European Studies).

Physical Education

The University offers a wide range of curricular and extra-curricular forms of physical education. The Department of Physical Education co-operates with the University Sports Club and other student sports organisations.

Farkas Heller Foundation

Farkas Heller was a world famous professor of economics and former rector of the University. The foundation established in 1999 in his honour provides for the development of training and research at the Faculty. The foundation operates as an organization of common benefit. The foundation receives donations from different organizations for different general and specified tasks that would promote the establishment of further forms of cooperation with companies, research centres and other organizations.

Harvard Businessmanager

It is a great honour for us that professors of our faculty form the editorial board of Harvard Businessmanager, the Hungarian version of the outstanding international business journal Harvard Business Review.

Institutes and Departments

Institute of Applied Pedagogy and Psychology
Department of Ergonomics and Psychology
Department of Technical Education
Centre for Continuing Engineering Education
Centre for Learning Innovation and Adult Learning
Institute of Economic Sciences
Department of Environmental Economics
Department of Economics
Institute of Social Studies
Department of Philosophy and History of Science
Department of Sociology and Communication
Institute of Business Sciences
Department of Management and Corporate
Economics
Department of Finance and Accounting
Department of Business Law

Center of Modern Languages
BME Language Examination Centre
English Department
German Department
Department of Romance Languages
 Section of Hungarian Language
 Section of Slavic Languages

Center of Physical Education

Budapest University of Technology and Economics
Faculty of Economic and Social Sciences
Faculty Office:
Building "Q" wing A, Mezzanine-floor, Room 5.
Mailing Address: Magyar tudósok krt. 2.
H-1111 Budapest, Hungary
Phone: (+36-1) 463-3591
Fax: (+36-1) 463-3590

Dean of the Faculty: Dr. János Kövesi
Vice-Deans of the Faculty:
Dr. Zoltán Sturcz (general and education)
Dr. László Valkó (scientific and international)
Dr. Gábor Bóta (finance)

Discovering Hungary - Eger

FACULTY OF TRANSPORTATION ENGINEERING

AND VEHICLE ENGINEERING

The Faculty of Transportation Engineering and Vehicle Engineering has been training engineers for the field of transportation and vehicle engineering since 1951. Since that time the profile of engineering training has been widened several times.

Actually, conforming to the linear training at the Faculty of Transportation Engineering end Vehicle Engineering, there are three basic specifications:

- BSc in Transportation Engineering,
- BSc in Vehicle Engineering,
- BSc in Logistics Engineering,

As the second stage of the linear training courses (BSc), there are three master training courses (MSc) on the same fields, like:

- Transportation Engineering master specialty,
- Vehicle Engineering master specialty,
- Logistics Engineering master specialty.

With adequate BSc qualification certified engineering qualification (MSc) can be obtained in 2 years at these master training specialties.

All the fundamental and complementary educations continued at the Faculty are carried out in accordance with the rules of the ECTS (European Credit Transfer System). The quantity of students' labour necessary for attaining the knowledge material of an arbitrary subject is measured through credit-points. One credit-point means on average 30 hours of student's labour, one study semester contains a study material with the quantity of 30 credit-points.
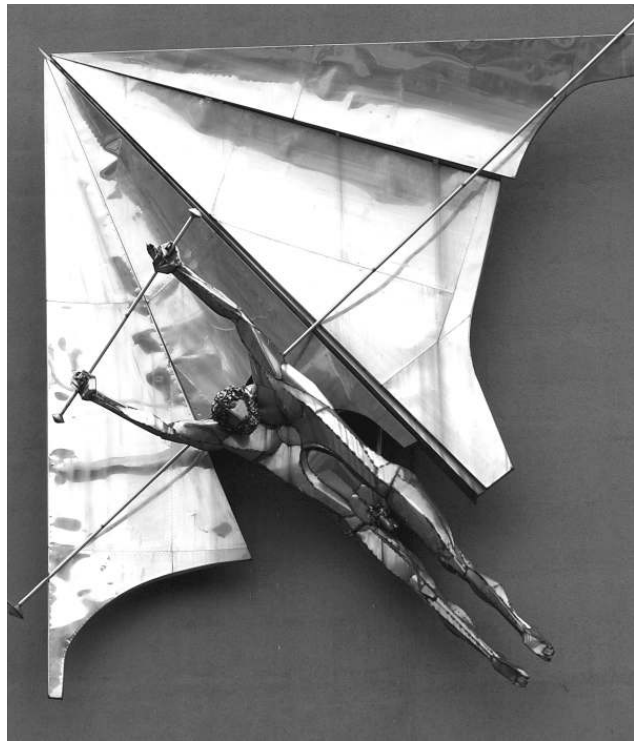
Departments

Department of Building Machines, Materials Handling Machines and Manufacturing Logistic,
Department of Vehicles Parts and Drives,
Department of Maintenance and Repair of Vehicles,
Department of Chassis and Lightweight Structures,
Department of Transport Automation,
Department of Transport Economics,
Department of Transport Operation,
Department of Aircraft and Ships,
Department of Road Vehicles,
Department of Railway Vehicles and Vehicle System Analysis.

Budapest University of Technology and Economics
Faculty of Transportation Engineering and Vehicle
Engineering
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Phone: (+36-1) 463-3551
Fax: (+36-1) 463-2550

Dean of the Faculty: Dr. Béla Kulcsár
Vice-Dean of the Faculty: Dr. András Eleod
Program Co-ordinator: Ms. Enikő Popráczi

Description of B.Sc. Courses

BSc in Transportation Engineering
Length of study: 7 semesters

Program objectives: The education of transportation engineers, who are able to design, arrange, operate and control transportation processes, to fulfil the related official and management tasks, as well as the works related to the selection, operation and maintenance of equipments realising processes, including the elements of infrastructure, informatics and control systems, as well. Possessing the obtained knowledge, the BSc graduated transportation engineers will be able to continue their studies in the second cycle of engineering education (leading to an MSc degree).

Specialisations: Specialisation in transportation processes, Specialisation in logistics

Competencies and skills: The transportation engineers received a basic certificate (BSc) - taking into consideration also the specialisations - are able:

- to recognise the demands for transportation, to determine the relationships to be applied,
- to exert active detailed cognition of transportation processes, to manage the processes mentioned together with their technical realisation,
- to design processes in accordance with the function of transportation systems, to select the technical components and to manage the operation of the system,
- to keep in operation vehicles and mobile machines serving the transportation process, to make the control systems operated, to take into consideration the environmental factors,
- to perform designing, organising and keeping in operation duties,
- to carry out public service and marketing activities.

BSc in Vehicle Engineering
Length of study: 7 semesters

Program objectives: The education of vehicle and-machinery engineers, who are able to keep in operation road vehicles, railway vehicles, aircraft and ships, as well as building machines in a system oriented way, taking into consideration the characteristics of the transportation processes, furthermore to solve the basic tasks of engineering, concerning their design, development, manufacturing and repair. They can perform special missions with emphasized regard to transport safety, environment protection and energy planning. Possessing the obtained knowledge, the BSc graduated vehicle and mobile-machinery engineers will be able to continue the studies in the second cycle of engineering education (leading to an MSc degree).

Specialisations: Specialisation in railway vehicles, Specialisation in road vehicles Specialisation in aircraft, Specialisation in ships, Specialisation in buildings machines, Specialisation in automated materials-handling equipments and robotics, Specialisation in vehicle manufacturing, Specialisation in vehicle mechatronics, Specialisation in vehicle superstructures.

Competencies and skills: Possessing the basic certificate, the vehicle and mobile-machinery engineers - taking into consideration also the prospective specialisations - are able:

- to recognise the necessary equipments for the realisation of transportation processes,
- to organize, arrange, control the safety, the powerful and environmental-protective operation of vehicles, vehicle systems, mobile machines, materials-handling machines and machine systems,
- to perform the basic engineering tasks related to the designing, manufacturing, repair, as well as organisation of vehicles and mobile-machinery,
- to provide and organize the official work related to installation and operation of vehicles and mobile-machinery.

BSc in Logistics Engineering
Length of study: 7 semesters

Program objectives: The education of logistics engineers, who are able to analyse, organise and manage the logistics processes and systems related to the material- and information-flow (transportation, material handling, storage, commission, loading, acquisition, division, recycling) inside and outside of enterprises, furthermore to solve the basic tasks of engineering, concerning their design, development, manufacturing and repair. Possessing the obtained knowledge, the BSc graduated logistics engineers will be able to continue the studies in the second cycle of engineering education (leading to an MSc degree).

Specialisations: Specialisation in logistical processes, Specialisation in technical logistics, Specialisation in shipping logistics.

Competencies and skills: Possessing the basic certificate, the logistics engineers - taking into consideration also the prospective specialisations - are able:

- to recognise the necessary equipments for the realisation of logistics systems and processes,
- to organize, arrange, control the safety, the powerful and environmental-protective operation of logistics systems,
- to perform the basic engineering tasks related to the designing, manufacturing, repair, as well as organisation of material handling machines,
- to provide and organize the official work related to installation and operation of logistic-machinery.

Actually, due to changes in basic training (BSc) our Faculty can ensure training in English with tuition fee for the time being only part-time (attending term at other faculties, training exchange students). The list of optional subjects in the given term is on website:

http://www.kth.bme.hu/index.php?document_show_html&doc_id=46650

Description of M.Sc. Courses (4 semesters)

MSc in Vehicle Engineering

Length of study: 4 semesters

Program objectives: The MSc level education of vehicle engineers, who are prepared to develop, to design, manufacture, research of operation processes, as well as to keep in operation, to maintain and railway vehicles, road vehicles, agricultural vehicles, ships, aircraft, building machines and materials-handling machines taking into consideration the requirements of safety, environmental-protection and energy management.

Competencies and skills: Possessing the MSc degree, vehicle engineers are able:

- to realise a system oriented and process analysing way of thinking directed on vehicles and mobile-machinery, having role in transportation processes,
- connected with the specialization selected, to carry out state assessments, to develop, design, organise and control complex systems of vehicle technology.

Basic specialization accepted to the input without any conditions:

- basic specialization of transportation engineering

Basic specialization accepted to the input with given conditions:

- mechanical engineering;
- mechatronics engineering;
- military staff, and safety technology engineering;
- agricultural and food industrial engineering;
- engineering informatics.

MSc in Transportation Engineering

Length of study: 4 semesters

Program objectives: The MSc level education of transportation engineers, who are prepared to analyse, to design, to organise and to control of transportation processes and systems taking into consideration the principles of economics and system orientation. They are prepared to carry out management and official tasks, as well as to select and keep vehicles and equipments in operation as elements of transportation systems, including the elements of infrastructure and informatics systems, too.

Competencies and skills: Possessing the MSc degree, transportation engineers are able:

- to recognise connections between systems and processes of transportation, to evaluate and to handle them in the framework of system theory, as well as to apply the principles and methods,
- connected with the specialization selected, to carry out state assessments, to develop, design, organise and control complex transportation systems.

Basic specialization accepted to the input without any conditions:

- basic specialization of transportation engineering

Basic specializations accepted to the input with given conditions:

- mechanical engineering;
- mechatronics engineering;
- military staff, and safety technology engineering;
- civil engineering;
- engineering informatics;
- light industry engineering.

Subject		
Name	**Code**	**Credits** **C/P/L**
Basic knowledge of natural science		
Engineering mathematics	BMEKOVJM101	4 2/1/0/m
Control theory	BMEKOKAM102	3 2/0/0/e
Electronics - electronic measur. syst.	BMEKOKAM103	4 2/1/0/m
I+C technologies	BMEKOKAM104	3 2/1/0/m
System technique - system modelling	BMEKOVJM108	3 2/1/0/m
Advanced materials and technologies	BMEKOJJM107	4 2/1/0/m
Economical and human knowledge		
Decision making methods	BMEKOKGM110	4 3/1/0/m
Project management	BMEKOKGM111	2 2/0/0/m
Professional basic knowledge		
Informatics in logistics	BMEKOKUM301	5 3/0/1/e
Planning of mat. handl. and w. systs I.	BMEKOKUM302	3 1/1/0/m
Planning of mat. handl. and w. systs II.	BMEKOKUM303	5 2/2/0/ e
Logistics machine, equipment, robotics	BMEKOEAM304	5 2/1/1/e
Control and automation of logistic sys.	BMEKOEAM305	5 2/1/1/e
Database systems in logistics	BMEKOEAM306	4 2/0/1/e
Specialisation in processes in logistics		
Planning of logistic processes	BMEKOKUM307	6 2/1/2/e
Enterprise logistics	BMEKOKUM308	6 2/1/1/e
Production logistics - production plan.	BMEKOEAM309	4 2/0/1/e
Operation of logistics systems	BMEKOKGM310	4 2/0/1/m
Specialisation in technical logistics		
Data communication systems	BMEKOEAM311	6 2/1/2/e
Materials handl. in flex. manufact. sys.	BMEKOEAM312	4 2/0/1/e
Machine intelligence	BMEKOEAM313	4 2/0/1/m
Robots and applications	BMEKOEAM314	6 2/1/1/e

Subject		
Name	**Code**	**Credits** **C/P/L**
Basic knowledge of natural science		
Engineering mathematics	BMEKOVJM101	4 2/1/0/m
Control theory	BMEKOKAM102	3 2/0/0/e
Electronics - electronic measurem. syst.	BMEKOKAM103	4 2/1/0/m
I+C technologies	BMEKOKAM104	3 2/1/0/m
Mechanics K	BMEKOJKM105	3 2/1/0/m
Advanced materials and technologies	BMEKOJJM107	4 2/1/0/m
Economical and human knowledge		
Decision making methods	BMEKOKGM110	4 3/1/0/m
Project management	BMEKOKGM111	2 2/0/0/m
Professional basic knowledge		
Transport Economics	BMEKOKGM201	4 2/1/0/e
Transport automation	BMEKOKAM202	4 2/1/0/e
Transport informatics	BMEKOKUM203	5 2/0/2/m
Traffic flow	BMEKOKUM204	4 2/1/0/e
Intelligent transport systems	BMEKOKUM205	5 2/0/2/e
Transport operation	BMEKOKUM206	5 2/2/0/e
Specialisation in transportation systems		
Logistics	BMEKOKUM207	5 3/1/0/e
Passenger transport	BMEKOKUM208	5 2/0/2/e
Transport modelling	BMEKOKUM209	6 1/0/3/m
Environmental effects of transport	BMEKOKUM210	4 2/1/0/e
Specialisation in transport automation		
Signal processing in transport	BMEKOKAM211	5 2/2/0/e
Inf. connect. of the vehic. and the track	BMEKOKAM212	3 2/0/0/e
Model. and contr. of vehic. and traf systs.	BMEKOKAM213	3 2/0/0/e
Engineering of trans. automat. systems	BMEKOKAM214	9 2/0/5/m
Specialisation in transportation engineering-management		
Controlling systems in transportation	BMEKOKGM215	6 4/0/0/e
Financing techniques in transportation	BMEKOKGM216	5 1/0/3/m
Managem. of transport and logistic serv.	BMEKOKGM217	6 2/2/0/e
Human resource managem. in transp.	BMEKOKGM218	3 1/0/2/e

MSc in Engineering Logistics

Length of study: 4 semesters

Program objectives: The MSc level education of logistics engineers, who are prepared to analyse, to design, to organise and to control of logistic processes and systems with regard to the management of material-flows and connected information-flows realising among the companies concerned. They are prepared to design, to develop and to take part in manufacturing and quality control, as well as to control the operation of logistic machinery, tools and equipments of elements of logistic systems.

Competencies and skills: Possessing the MSc degree, logistic engineers are able:

- to interconnect the component-processes of logistic systems and the component-units performing the physical realisation of the former systems.

Basic specialization accepted to the input without any conditions:

- basic specialization of transportation engineering

Basic specialization accepted to the input with given conditions:

- mechanical engineering;
- mechatronics engineering;
- military staff, and safety technology engineering;
- agricultural and food industrial engineering;
- engineering informatics;
- light industry engineering.

Admittance to master courses (MSc) ensured by the announced training, partly in English language is possible in case of meeting the input conditions, passing entrance examination and in case of at least 5 students' participation.

Subject			
Name	**Code**	**Credits**	**C/P/L**
Basic knowledge of natural science			
Engineering mathematics	BMEKOVJM101	4	2/1/0/m
Control theory	BMEKOKAM102	3	2/0/0/e
Electronics - electronic meas. syst.	BMEKOKAM103	4	2/1/0/m
System technique and analysis	BMEKOVJM109	3	2/1/0/m
Mechanics J	BMEKOJKM106	3	2/1/0/m
Advanced materials and technologies	BMEKOJJM107	4	2/1/0/m
Economical and human knowledge			
Decision making methods	BMEKOKGM110	4	3/1/0/m
Integrated quality management systems	BMEKOGJM112	2	2/0/0/m
Professional basic knowledge			
Comp. aided concept., dimens. and m.	BMEKOJHM401	8	2/2/2/e
Vehicle operation, reliability and diag.	BMEKOVJM402	3	2/0/0/e
Materials flow and technical logistics	BMEKOEAM403	2	2/0/0/m
Mechatronics, robotics and microcomp.	BMEKOKAM404	5	2/1/1/e
Vehicle body structures	BMEKOJKM405	3	1/1/0/e
Vehicle engines and transmission syst.	BMEKORHM406	6	3/1/1/e
Specialisation in railway vehicle engineering			
Design and testing of railway vehicle sys.	BMEKOVJM407	9	2/0/5/m
Railway vehicle system dynamics	BMEKOVJM408	4	2/1/0/e
Operation of railway vehicles	BMEKOVJM409	3	2/0/0/e
Diesel and electric traction	BMEKOVJM410	4	2/1/0/e
Specialisation in automobile engineering			
Engine design	BMEKOGJM411	6	2/0/2/e
Transmission syst. design and veh. mech.	BMEKOGJM412	4	2/1/0/e
Suspension design and vehicle dynamics	BMEKOGJM413	4	2/1/0/e
Vehicle constr. and design, road safety	BMEKOGJM414	6	2/0/3/m
Specialisation in naval architect engineering			
Design and testing of ships	BMEKORHM415	8	2/2/2/e
Theory and propulsion of ships III.	BMEKORHM416	4	2/0/1/e
Manufacturing and operation of ships	BMEKORHM417	3	2/0/0/e
Construction of ships	BMEKORHM418	5	2/0/2/m
Specialisation in aircraft engineering			
Design and testing of aircrafts	BMEKORHM419	9	2/0/5/m
Flight theory	BMEKORHM420	4	2/1/0/e
Theory of aircraft engines	BMEKORHM421	4	2/1/0/e
Construction of aircraft	BMEKORHM422	3	2/0/0/e
Specialisation in mobile machine and building machine engineering			
Dynamics of logistical machines	BMEKOEAM423	5	2/0/2/e
Mobile hydrostatic system	BMEKOEAM424	5	2/1/1/e
Design of concrete technology's mach.	BMEKOEAM425	5	2/0/2/e
Construction processes	BMEKOKUM426	5	2/1/0/m
Specialisation in automated materials-handling engineering			
Theory of mat. handling machine design	BMEKOEAM427	5	2/1/1/e
Network control syst. of mat. handling	BMEKOEAM428	5	2/0/2/m
Mechatronics	BMEKOEAM429	5	2/1/1/e
Automated materials handling systems	BMEKOEAM430	5	2/0/1/e
Specialisation in vehicle manufacturing and vehicle repair			
Measuring syst in the vehicle manufact.	BMEKOJJM431	3	2/0/0/m
Vehicle manufacturing systems	BMEKOJJM432	9	2/2/4/e
Surface engineering	BMEKOJJM433	5	2/0/1/e
Typical vehicle-production technologies	BMEKOJJM434	3	2/0/0/e
Specialisation in vehicle system engineering			
Measurm. techn. and signal proc. in veh.	BMEKOKAM435	5	2/0/2/m
Vehicle system dynamics and control	BMEKOVJM436	7	2/2/1/e
Vehicle system informatics	BMEKOVJM437	5	2/0/2/e
Vehicle simulation and optimisation	BMEKOVJM438	3	2/0/0/e
Specialisation in transportation safety			
Road safety, accident reconstruction	BMEKOGJM439	6	2/1/1/e
Vehicle eval, traffic environ., human fact.	BMEKOGJM440	5	2/1/1/e
Dynamics of vehicle	BMEKOGJM441	4	2/0/0/e
Motor vehicle measurements	BMEKOGJM442	5	2/0/3/m
Specialisation in alternative vehicle drive system			
Design of alternative vehicle drive syst.	BMEKOGJM443	7	2/2/1/e
Control of hybrid vehicle systems	BMEKOGJM444	5	2/0/2/e
Dynamics of electro-hybrid vehicles	BMEKOGJM445	3	2/0/0/e
Design of mech. comp. for alt.. drive syst.	BMEKOGJM446	5	2/0/2/m

2012/2013 ACADEMIC CALENDAR
Fall Semester: All new Students

Registration in Students' Office Bldg. R 104. (after payment of tuition fees) . . . . . . 21 Aug - 7 Sep, 2012
Appointments for Obligatory Medical Check-up (necessary for Health Insurance).   21 Aug - 7 Sep, 2012
Preparatory Classes (Math, Physics) **for Placement Test** .21 Aug - 24 Aug, 2012
Placement Tests: Math, Physics and English Language . . . . .27 Aug - 29 Aug, 2012
Orientation Program Newly enrolled regular and Exchange Students . . . . .21 Aug - 2 Sep, 2012
Placement Test Results Posted Outside Student's Office . . . . .31 Aug 12:00, 2012
Presentation of Schedules for Freshmen in Bldg. R 104. Student's Office . . .31 Aug, 12:00 -13:00, 2012
First day of classes   . . . . **3 Sept (Monday) at 8:15 am, 2012**
Pre-Engineering Classes Begin . . . . .10 Sep, 2012
Last Day of Classes for Freshmen, Exchange Students, Pre-Engineering Students . . . . .7 Dec, 2012
Classes and Examinations in 2013 for Pre-Engineering . . . . .2-29 January, 2013
Winter Holidays for Pre-Engineering Students . . . . .10 Dec 2012 - 2 Jan, 2013
Examination Period for 1ˢᵗ Year Students (Check with your Faculty!) . . . . . .10 Dec 2012 - 22 Jan, 2013
Winter Holidays for 1ˢᵗ Year Students   . . . . .21 Dec 2012 - 2 Jan, 2013

Fall Semester: 2ⁿᵈ and Higher Year Students

Registration in Student's Office . . . . .24 Aug - 4 Sept, 2012
First Day of Classes . . . . .3 Sept, 2012
Last Day of Classes . . . . .7 Dec, 2012
Delayed submission . . . . .10 - 14 Dec, 2012
Examination Period (Check with your Faculty!) . . . . .17 Dec 2012 - 22 Jan, 2013
Winter Holidays for All Students . . . . .21 Dec 2012 - 2 Jan, 2013

Days off for All Students
National Day . . . . .22-23 Oct (Monday, Tuesday), 2012
  Work day instead of 22 Oct (Monday) . . . .*27 Oct (Saturday), 2012*
All soul's day . . . . .2 Nov (Friday), 2012
  Work day instead of 2 Nov. (Friday) . . . .*10 Nov (Saturday), 2012*
Christmas . . . . .24 Dec (Monday), 2012
  Work day instead of 24 Dec. (Monday) . . . .*15 Dec (Saturday), 2012*

Spring Semester: All Students

Registration in Students' Office, Bldg. R 104. . . . . .4 Feb - 8 Feb, 2013
Orientation for Exchange and Transfer Students . . . . .4 Feb - 6 Feb, 2013
First Day of Classes . . . . .11 Feb (Monday), 2013
Last Day of Classes . . . . .17 May, 2013
Delayed submission . . . . .21 - 24 May, 2013
Examination Period (Check with your Faculty!)   . . . . .27 May - 21 June, 2013
Last Day of Final Exams . . . . .21 June, 2013

Days off for All Students
National Day . . . . .15 March, (Friday), 2013
Easter Monday . . . . .1 April (Monday), 2013
Labour Day . . . . .1 May (Wednesday), 2013
Whit Monday . . . . .20 May (Monday), 2013

THE 2012/2013 ACADEMIC YEAR will begin on the 3ʳᵈ of SEPTEMBER 2012