

Introduction

The program aims to provide students with the general knowledge and skills of electrical engineering, both focusing on natural science, technology and informatics as well as economy, humanity, languages and the relevant subjects. By BSc programme, students can cooperate in the designs of electrical and electronic devices, installations, complex systems, and projects. While producing and operating such systems, students have the chance to monitor their calibration, quality, and testing. They can participate in their installation and operation while they are also able to do service-engineering, product engineering, and managing.

Being specialized within the faculty gives students the opportunity to be prepared to do creative engineering work.

Main training areas (210 credits)

Natural science fundamentals	40-50 credits
Economics and humanities	14-30 credits
Professional core material	70-105 credits
Specific professional knowledge	min. 40 credits
Free electives	min. 10 credits

BSc Electrical Engineering curriculum

1 st semester				
Credits	Course code	Course name	Contact hours L S Lab	Requirement
6	BMETE90AX00	Mathematics A1	4 2	exam
4	BMETE11AX21	Physics 1	3 1	exam
5	BMEVISZAA05	Foundation of computer science	2 2	exam
6	BMEVHIAA04	Digital design 1	3 1 1	exam
7	BMEVIHIAA01	Basics of programming 1	2 2 2	mid-semester mark
3	BMEGT63EEI1*	English for Electrical Engineering and Informatics 1.	4	mid-semester mark
2 nd semester				
Credits	Course code	Course name	Contact hours L S Lab	Requirement
6	BMETE90AX26	Mathematics A2	4 2	mid-semester mark
4	BMETE11AX22	Physics 2	3 1	exam
6	BMEVIHVAA00	Signals and systems 1	3 2	exam
5	BMEVHIAA02	Digital design 2	3 1	exam
6	BMEVIAUAA01	Basics of programming 2	2 2	mid-semester mark
3	BMEGT63EEI2*	English for Electrical Engineering and Informatics 2.	4	mid-semester mark
0	TE90AX16	Comprehensive Examination in Mathematics A2		exam

Bachelor of Science Degree Program
Electrical Engineering Curriculum

3rd semester						
Credits	Course code	Course name	Contact hours		Requirement	
			L	S	Lab	
4	BMETE90AX0	Mathematics A3	2	1		exam
4	BMETE90AX51	Mathematics A4	2	2		exam
6	BMEVIETAB00	Electronics technology and materials	3		2	mid-semester mark
6	BMEVIHVAB01	Signals and systems 2	3	3		exam
5	BMEVIVEAB00	Electrotechnics	3		1	mid-semester mark
5	BMEVIHIAB02	Electronics 1	2	2		exam
4th semester						
Credits	Course code	Course name	Contact hours		Requirement	
			L	S	Lab	
4	BMEVIIIAB08	Informatics 1	4			mid-semester mark
5	BMEVIAUAB01	Informatics 2	3		1	exam
5	BMEVIMIAB01	Measurement technology	3	2		mid-semester mark
5	BMEVITMAB03	Infocommunication	2	2		exam
5	BMEVIIIAB05	Control engineering	2	1	1	exam
5	BMEVIVEAB01	Power engineering	2	1	1	exam
5th semester						
Credits	Course code	Course name	Contact hours		Requirement	
			L	S	Lab	
4	BMEVIHVAC03	Introduction to electromagnetic fields	2	1		exam
4	BMEVIMIAC12	Laboratory 1			3	mid-semester mark
5	BMEVIAUAC05	Electronics 2	4		1	mid-semester mark
4		specialization subject 1	3	1		exam
4		specialization subject 2	3	1		exam
4		specialization subject 3	3	1		exam
3	BMEVI**AL02	Training Project Laboratory			2	mid-semester mark
4	BMEGT20A001	Management and business economics	4			mid-semester mark
6th semester						
Credits	Course code	Course name	Contact hours		Requirement	
			L	S	Lab	
5	BMEVIEEAB00	Microelectronics	2		2	exam
5	BMEVIMIAC13	Laboratory 2			4	mid-semester mark
4		specialization subject 4	3	1		exam
4		specialization laboratory			3	mid-semester mark
5	BMEVI**AL03	Project laboratory			4	mid-semester mark pre-requisite: Training Project Laboratory
2	BMEVI*****	Free elective	2			mid-semester mark
2	BMEGT55A001	Business law	2			mid-semester mark
4	BMEGT30A001	Micro- and macroeconomics	4			exam

Bachelor of Science Degree Program
Electrical Engineering Curriculum

7 th semester				
Credits	Course code	Course name	Contact hours L S Lab	Requirement
2	BMEVI*****	Free elective	2	mid-semester mark
2	BMEVI*****	Free elective	2	mid-semester mark
2	BMEVI*****	Free elective	2	mid-semester mark
2	BMEVI*****	Free elective	2	mid-semester mark
2	BMEGT****	Human & economic science elective	2	mid-semester mark
2	BMEGT****	Human & economic science elective	2	mid-semester mark
15	BMEVI**AT01	BSc thesis project	10	mid-semester mark pre-requisites

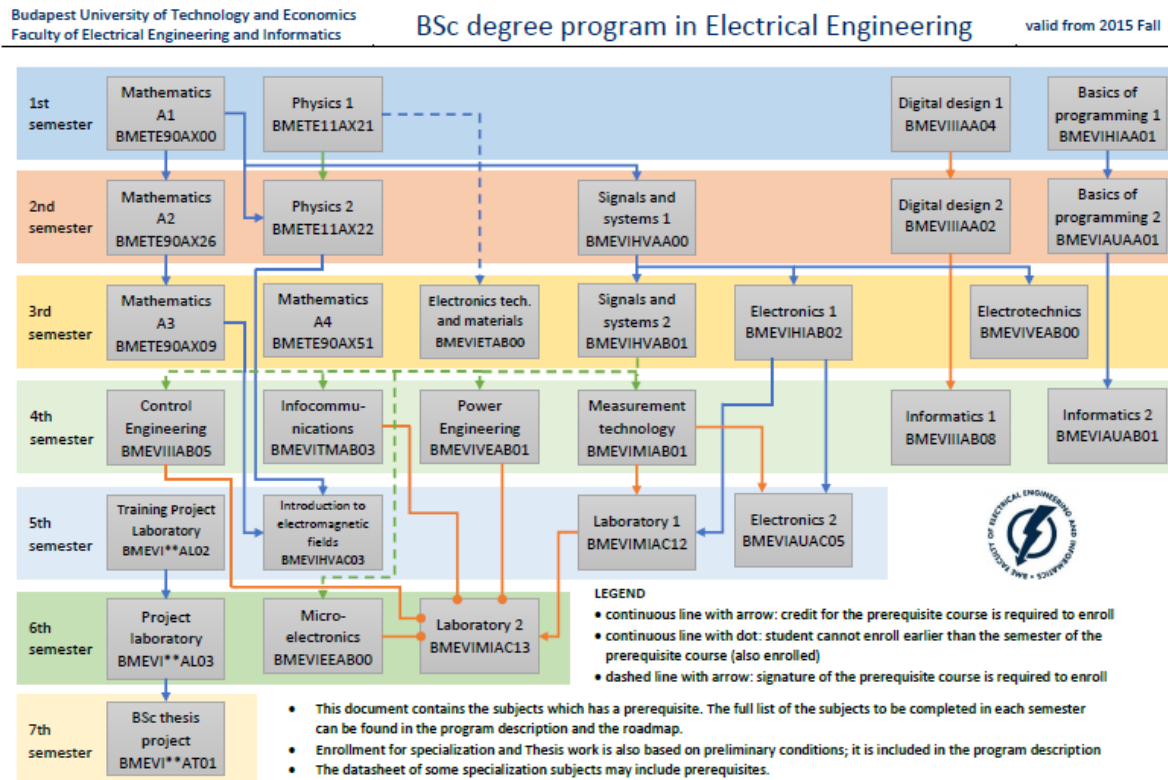
* Students, who started the program before 2019 can substitute the English for Electrical Engineering and Informatics 1. - 2. subjects (BMEGT63EEI1 and BMEGT63EEI2) by elective Human & economic science subjects (min. 6 credits altogether).

Specialization subjects

	Embedded and Control Systems	Infocommunication Systems	Sustainable Electric Energetics
prerequisite course	Control Engineering BMEVIIIAB05	Infocommunication, BMEVITMAB03	Power Engineering BMEVIVEAB01
specialization subject 1	Embedded and ambient systems BMEVIMIAC06	Space Technology BMEVIHVAC05	Electric power transmission BMEVIVEAC00
specialization subject 2	Industrial control BMEVIIIAC03	Network Technologies and Applications BMEVITMAC05	Electrical machines and applications BMEVIVEAC01
specialization subject 3	Microcontroller based systems BMEVIAUAC06	Mobile Communication Systems BMEVIHIAC04	Electrical equipment and insulations BMEVIVEAC02
specialization subject 4	Embedded operating systems and client BMEVIAUAC07	High Frequency System Techniques BMEVIHVAC04	Control of electric drives BMEVIVEAC04
specialization laboratory	Embedded and control systems laboratory BMEVIAUAC08	Radio Systems and Applications laboratory BMEVIHVAC06	Sustainable electric energetics laboratory BMEVIVEAC07
Training Project Laboratory	BMEVIAUAL02	BMEVIHVAL02	BMEVIVEAL02
Project laboratory	BMEVIAUAL03 BMEVIIIAL03 BMEVIMIALL03	BMEVIHVAL03 BMEVIHIAL03 BMEVITMAL03	BMEVIVEAL03
BSc thesis project	BMEVIAUAT01 BMEVIIIAT01 BMEVIMIAT01	BMEVIHVAT01 BMEVIHIAT01 BMEVITMAT01	BMEVIVEAT01

Preliminary course schedule

The following diagram shows the structure of mandatory subjects of the programme. Those subjects of the study plan are not presented below that have no mandatory preliminary conditions for enrollment.



Mandatory prerequisites

Copyright BME VIK, 2015

Due to the fixed structure of the subjects of specializations, further preliminary conditions may be requested in the Neptun Study Administration System.

Project subjects can only be taken in a fixed order of semesters, which means that Training Laboratory can only be followed by Project Laboratory and then BSc Thesis project. These subject can be both taken in spring and fall semesters.

Certificate of adequate English knowledge, enrollment for specialization and Thesis project is also based on preliminary conditions (the so-called milestone requirement of the programme).

- Certificate of adequate English knowledge issued by BME GTK Centre for Modern Languages
 - It is a requirement to obtain the certificate by the end of the second semester and is also a condition of further studies
- Specialization enrollment conditions
 - at least 90 credits are completed
 - all courses of the first and second semesters are completed
 - at least 20 credits of the third semester are completed
 - Specialization prerequisite subject is completed
 - Mathematics comprehensive exam is completed
- Thesis project enrollment conditions
 - at least 174 credits are completed (up to 10 credits free electives)
 - all courses of the first four semesters are completed
 - all specialization courses are completed



Bachelor of Science Degree Program
Electrical Engineering Curriculum

Mandatory human and economic science

The subject block of human and economic science consists of two parts:

- Obligatory subjects
 - Management and Business Economics (BMEGT20A001)
 - Micro- and Macroeconomics (BMEGT30A001)
 - Business Law (BMEGT55A001)
 - English for Electrical Engineering and Informatics 1. (BMEGT63EEI1)
 - English for Electrical Engineering and Informatics 2. (BMEGT63EEI2)
- Students, who started the program before 2019 can substitute the English for Electrical Engineering and Informatics 1. - 2. subjects (BMEGT63EEI1 and BMEGT63EEI2) by elective Human & economic science subjects (min. 6 credits altogether).
- Two elective human and economic science elective subjects (4 credits altogether). The list of human and economic science elective subjects is available on the Faculty's website.

Mandatory English language subjects

2 mandatory language courses have been introduced in the first and second semesters in order to reinforce effective learning (BMEGT63EEI1 English for Electrical Engineering and Informatics 1. and BMEGT63EEI2 English for Electrical Engineering and Informatics 2.)

Students are assigned and registered for courses centrally by the language institute, so it is unnecessary to register in Neptun while deregistration of such courses is not allowed. The fulfilment of the English course is a must in the first 2 semesters of the BSc programme to students who do not have a certificate of adequate English knowledge issued by BME GTK Centre for Modern Languages. Please note that no other language certificates are accepted. It is a requirement to obtain the certificate by the end of the first year and is also a condition of further studies. To obtain the language certificate, you need to:

- Fulfil the requirements of the pre-engineering English course at an adequate level
- Fulfil the requirements of the BSc English course in the first semester at an adequate level
- Fulfil the requirements of the BSc English course in the second semester at an adequate level

Students obtaining the English language certificate by the beginning of the given semester must select elective economic and human subject instead (3 or 6 credits altogether).

Specialization

Specializations start every fall semester, and the selection of specialization is always at the end of the 4th semester. At the end of the spring semester (after the end of the exam period) the students who have met all criteria for the enrollment to specializations forward their preferred order of specialization to the Faculty. The decision on the type of specialization and the placement of students depends on the number and the results of applying students and the Faculty teaching capacity.

Project subjects

Within the frames of specialization students take so-called project subjects from the 5th semester beginning with Training laboratory, then Project Laboratory in the next semester and finally BSc Thesis project. As each subject is based on the other one, this is the strict order of enrollment. However, they can be both taken in spring and fall semesters.

During classes, students solve more challenging technical problems (projects) either in groups or individually. A topic may cover different fields of science (in which the subtasks are specifically designed for each subject). Students can only take project subjects after being enrolled in one of the specializations.

Free elective subjects

Students take free elective subjects for a minimum of 10 credits to widen their knowledge from the list of available courses announced by the Faculty. The ten credit criteria can either be achieved by any 2-credit or 4-credit subject combinations. The list of free elective courses may vary from year to year. The updated lists can be found on the Faculty's website.



Bachelor of Science Degree Program
Electrical Engineering Curriculum

The transition of BSc curriculum from September 2017

The curriculum of BSc programme of electrical engineering and informatics have been slightly modified from September 2017, which means that the number of credits as well as the codes of certain subjects had to be changed.

It is the modified curricula, introduced in September 2017, where you will find all the subjects of the given semester. Students having their signatures from previous semesters should register for the exam course under the previous subject code.

Due to the modifications of the number of credits mentioned above, students may have less or more credits of certain subjects based on the previous curriculum. In this case, the amount of credits should be added up, and the difference should be adjusted by selecting Free Elective courses. In other words, students having less credits should register for more Free Elective courses, students having more credits should select courses from the list of Free Electives that are worthless credits. The goal is to fulfil the minimum 210-credit criteria of the curriculum by the end of the programme.