



Bachelor of Science Degree Program
Computer Engineering Curriculum

Introduction

The program aims to qualify computer science engineers with solid engineering skills who are competent to install and operate technical IT and information infrastructure systems and services, and also to design and develop data and program systems. This means that graduates are expected to use both software development methods and development tools, involving modeling, simulation, performance, and reliability of systems. Students will be able to do programming in an object-oriented and visual programming environment.

Main training areas (210 credit):

Natural science fundamentals	40-45 credits
Human and economic subjects	15-25 credits
Professional core material and specific professional knowledge	100-150 credits
Free Elective subjects	min. 10 credits

BSc Computer Engineering curriculum

1 st semester				
Credits	Course code	Course name	Contact hours L S Lab	Requirement
6	BMETE90AX21	Calculus 1 for informaticians	4 2	exam
4	BMETE11AX23	Physics 1i	2 1	exam
5	BMEVISZAA03	Introduction to the theory of computing 1	2 2	exam
6	BMEVIMIAA02	Digital design	2 1 2	exam
7	BMEVIEEAA00	Basics of programming 1	2 2 2	mid-semester mark
2	BME	English language	2	mid-semester mark
2 nd semester				
Credits	Course code	Course name	Contact hours L S Lab	Requirement
6	BMETE90AX22	Calculus 2 for informaticians	4 2	mid-semester mark
4	BMETE11AX24	Physics 2i	2 1	exam
5	BMEVISZAA04	Introduction to the theory of computing 2	2 2	exam
4	BMEVIMIAA00	System modeling	2 1	mid-semester mark
6	BMEVIIIAB03	Programming 2	2 2	mid-semester mark
4	BMEVIHIAA02	Computer architectures	2 1	exam
	TE90AX20	Comprehensive Examination in Calculus		exam
3 rd semester				
Credits	Course code	Course name	Contact hours L S Lab	Requirement
5	BMEVISZAB02	Probability theory	2 2	exam
4	BMEVIHIAA00	Coding technology	3	exam
5	BMEVITMAB04	Databases	2 1 1	exam
4	BMEVIHIAA01	Communication networks 1	2 1	mid-semester mark
5	BMEVIIIAB00	Programming 3	2 2	mid-semester mark
4	BMEVIIIAB01	Software engineering	3	exam
4	BMEVIHVAB00	System theory	2 2	mid-semester mark

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4 th semester						
Credits	Course code	Course name	Contact hours			Requirement
			L	S	Lab	
5	BMEVISZAB03	Theory of algorithms	2	2		exam
5	BMEVIMIAB00	Operating systems	3	1		exam
3	BMEVIIIAB07	Computer graphics	3			mid-semester mark
4	BMEVITMAB01	Communication networks 2	2	1		exam
5	BMEVIAUAB00	Software techniques	2	2		exam
3	BMEVIIIAB06	Software project laboratory		2		mid-semester mark
4	BMEGT20A001	Management and business economics	4			exam
5 th semester						
Credits	Course code	Course name	Contact hours			Requirement
			L	S	Lab	
4	BMEVIEEAC00	Technology of IT devices	2	1		mid-semester mark
5	BMEVIAUAC00	Mobile- and web-based software	2	2		exam
3	BMEVIMIAC10	Artificial intelligence	3			mid-semester mark
4		specialization subject 1	2	1		exam
4		specialization subject 2	2	1		exam
3	BMEVI**AL00	Training Project Laboratory		3		mid-semester mark
4	BMEGT30A001	Micro- and macroeconomics	4			exam
2	BMEGT55A001	Business law	4			mid-semester mark
6 th semester						
Credits	Course code	Course name	Contact hours			Requirement
			L	S	Lab	
3	BMEVIHIAC01	IT security	3			mid-semester mark
4	BMEVITMAC02	Management of information systems	2	1		mid-semester mark
4		specialization subject 3	2	1		exam
4		specialization subject 4	2	1		exam
3		specialization laboratory 1		2		mid-semester mark
5	MEVI**AL01	Project laboratory		4		mid-semester mark
4	BMEVI****	Free elective	4			exam
2	BMEGT*****	Human & economic science elective	2			mid-semester mark
2	BMEGT*****	Human & economic science elective	2			mid-semester mark
7 th semester						
Credits	Course code	Course name	Contact hours			Requirement
			L	S	Lab	
3	BMEVIMIAD00	Embedded information systems	2	1		mid-semester mark
3		specialization laboratory 2		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**AT00	BSc thesis project		10		mid-semester mark



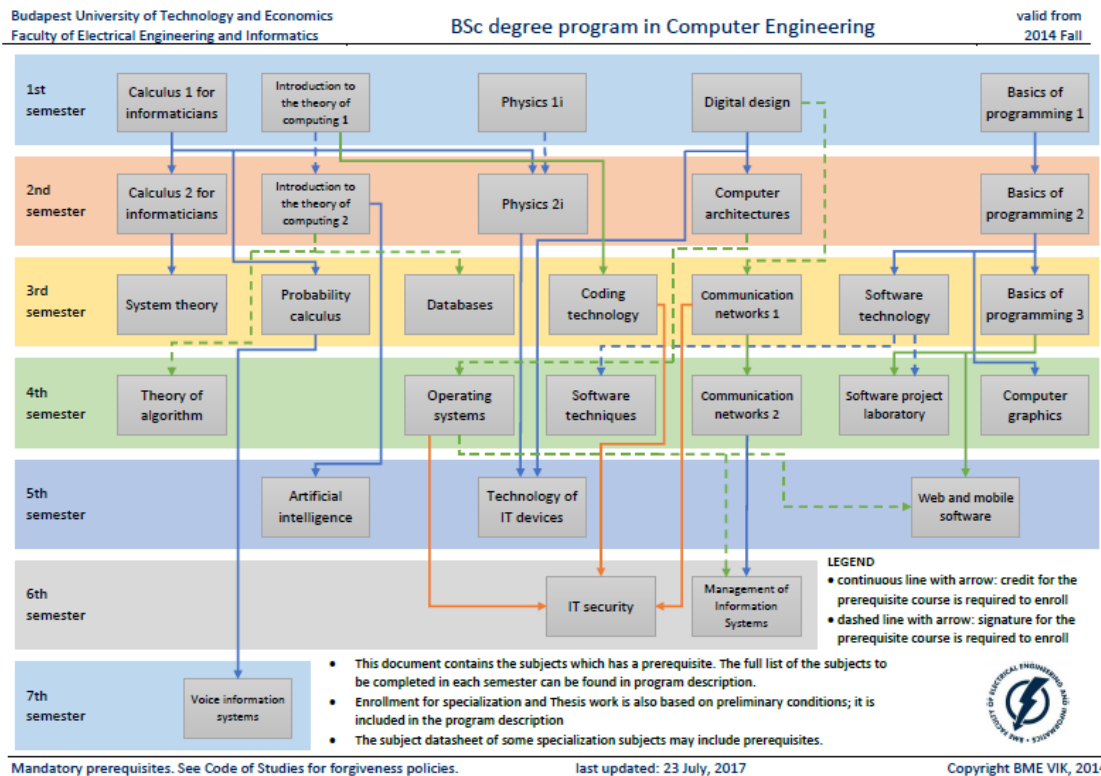
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Specializations subjects

	Infocommunications	Software Engineering
specialization subject 1	Mobile communication networks BMEVIHIAC00	Data-driven systems BMEVIAUAC01
specialization subject 2	Building and operation of networks BMEVITMAC00	Object-oriented software design BMEVIIIAC00
specialization subject 3	Media applications & networks in practice BMEVIHIAC02	Integration & verification techniques BMEVIMIAC04
specialization subject 4	Networked Resource Platforms and Applications BMEVITMAC03	Client side technologies BMEVIAUAC02
specialization laboratory 1	Infocommunication laboratory 1 BMEVITMAC08	Software development laboratory 1 BMEVIAUAC09
specialization laboratory 2	Infocommunication laboratory 2 BMEVIHIAD02	Software development laboratory 2 BMEVIAUAD01
Training Project Laboratory	BMEVITMAL00	BMEVIAUAL00
Project laboratory	BMEVIHIAL01 BMEVITMAL01	BMEVIAUAL01 BMEVIIIAL01 BMEVIMIAL01
BSc thesis project	BMEVIHIAT00 BMEVITMAT00	BMEVIAUAT00 BMEVIIIAT00 BMEVIMIAT00

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. 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.

Enrollment for specialization and Thesis project is also based on preliminary conditions (the so-called milestone requirement of the programme).

- 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
 - 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



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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.

Human and economic science

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

- mandatory subjects
 - Management and Business Economics (BMEGT20A001)
 - Micro- and Macroeconomics (BMEGT30A001)
 - Business Law (BMEGT55A001)
 - English language
- Four elective human and economic science subjects (8 credits altogether).

The list of human and economic science elective subjects is available on the Faculty's website

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.