Introduction

The program aims to qualify engineers with solid scientific and technical knowledge related to the professional field of Information Technology who are competent in the design of IT systems and tools and the development and integration of IT systems. The MSc program is also designed to prepare students to carry out and coordinate IT-related research and innovation tasks as well as to continue to Ph.D. studies.

Preliminary Course Schedule

According to Faculty regulations:
- The subject datasheet of some specialization subjects may include preliminary subject prerequisites. (Especially in the case of laboratories that are followed by and based on the knowledge of specialization subjects.)
- Project Laboratory 1., Project Laboratory 2., Diploma Thesis Design 1., Diploma Thesis Design 2.
    - Only MSc students of the given program can be admitted
    - The subjects can only be taken one after the other having completed the credits of the previous subject

Specializations

During MSc studies, students must complete one major and one secondary specialization. Students are requested to hand in their application for specialization (the order of their main and secondary specialization) before admittance, during their entrance exam. The main and secondary specializations can be combined as desired.

The student must complete all six specialization subjects (4 theoretical and 2 laboratory subjects) to complete the main specialization. In addition to the main specialization, students must also complete one of the secondary specializations. The secondary specialization includes two theoretical subjects and one lab subject.

Changing Specialization

Students may submit a request in the Neptun Study Administration System in order to change their specialization within the first semester of specialization. In case the request is accepted, the student is transferred to the other specialization in the next semester (provided that the specialization starts in the given semester).

Summer Internship

One of the conditions for obtaining the diploma is the completion of a professional internship of at least 6 weeks. The possible dates, locations, content and order of conducting the summer internship are published on the Faculty's website.

Human and Economic Science Subjects

The Human and Economic Science subject block in the Computer Engineering MSc Program consists of 2 parts:
- Engineering management (BMEVITMMB03)
- Three other subjects (6 credits altogether). The Human and Economic Science Elective subject list is available on the Faculty's website.

Project Subjects

Within the frames of specialization, students take so-called Project Subjects that are related to their selected main or secondary specialization. These subjects normally begin with Project Laboratory 1 in the 1st semester, Project Laboratory 2 in the 2nd semester, followed by Thesis work 1 in the 3rd semester, and finally Thesis work 2 in the 4th semester. 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 6 credits from the list of recommended and available subjects announced by the Faculty in order to widen their knowledge.

The list of Free Elective Subjects may vary from year to year. The updated lists can be found on the Faculty's website.

Advanced Mathematics Subjects

Students are free to choose from among mathematics subjects, regardless of the admission of the major and minor specialization. Two subjects must be completed.

Neptun ID	Title	Semester
VISZMA10	System Optimization	Spring
TE90MX75	Applied Algebra and Mathematical Logic	Fall
VISZMA11	Mathematical Statistics	Fall

Common Subjects

Students are free to choose from among common subjects, regardless of the admission of the major and minor specialization. Two subjects must be completed.

Neptun ID	Title	Semester
VIMIMA26	Formal Methods	Spring
VISZMA12	Language and Automatics	Fall
VIAUMA21	Software Architectures	Fall

MSc Computer Engineering Curriculum

Students who do not complete a minimum of 120 credits or do not complete one of the compulsory subjects cannot get a MSc degree. There are two versions of the curriculum so that students can begin their studies either in the spring or fall semesters. Subjects – with few exceptions – are only announced once a year, either in the spring or in the fall.

Starts: fall semester

Credits	Subject code	Subject name	Contact hours L S Lab			Requirement
1st semester (fall)						
Credits	**Subject code**	**Subject name**	**L**	**S**	**Lab**	**Requirement**
5	BMETE90MX75 or BMEVISZMA11	Advanced Mathematics	4			exam
5	BMEVISZMA12 or BMEVIAUMA21	Common Subject	3			mid-semester mark
5		Main Specialization Subject A2	2	1		exam
5	BMEVI**ML10	Project Laboratory 1			3	mid-semester mark
2	BMEGT*****	Human & Economic Science	2			mid-semester mark
2	BMEGT*****	Human & Economic Science	2			mid-semester mark
2	BMEGT*****	Human & Economic Science	2			mid-semester mark
2	BMEVI******	Free Elective Subject	2			mid-semester mark
2nd semester (spring)						
Credits	**Subject code**	**Subject name**	**L**	**S**	**Lab**	**Requirement**
5	BMEVISZMA10	Advanced Mathematics	4			exam
5	BMEVIMIMA26	Common Subject	3			mid-semester mark
5		Main Specialization Subject A1	2	1		exam
5		Main Specialization Laboratory A2			3	mid-semester mark
5		Secondary Specialization Subject A	2	1		exam
4	BMEVITMMB03	Engineering Management	4			exam
5	BMEVI**ML11	Project Laboratory 2			3	mid-semester mark pre-requisite: Project laboratory 1
3rd semester (fall)						
Credits	**Subject code**	**Subject name**	**L**	**S**	**Lab**	**Requirement**
5		Main Specialization Laboratory A1			3	mid-semester mark
5		Main Specialization Subject C	2	1		exam
5		Secondary Specialization Subject B	2	1		exam
2	BMEVI******	Free Elective Subject	2			mid-semester mark
2	BMEVI******	Free Elective Subject	2			mid-semester mark
10	BMEVI**MT10	Diploma Thesis Design 1			3	mid-semester mark pre-requisite: Project laboratory 2
0		Summer Internship				signature
4th semester (spring)						
Credits	**Subject code**	**Subject name**	**L**	**S**	**Lab**	**Requirement**
5		Main Specialization Subject B	2	1		exam
4		Secondary Specialization Laboratory A			3	mid-semester mark
20	BMEVI**MT11	Diploma Thesis Design 2			7	mid-semester mark pre-requisite: Diploma Thesis Design 1

Starts: spring semester

Credits	Subject code	Subject name	Contact hours L S Lab	Requirement
1st semester (spring)
Credits	Subject code	Subject name	Contact hours L S Lab	Requirement
5	BMEVISZMA10	Advanced Mathematics	4	exam
5	BMEVIMIMA26	Common Subject	3	mid-semester mark
5		Main Specialization Subject A1	2 1	exam
5		Secondary Specialization Subject A	2 1	exam
5	BMEVI**ML10	Project Laboratory 1	3	mid-semester mark
4	BMEVITMMB03	Engineering Management	4	exam
2nd semester (fall)
Credits	Subject code	Subject name	Contact hours L S Lab	Requirement
5	BMETE90MX75 or BMEVISZMA11	Advanced Mathematics	4	exam
5	BMEVISZMA12 or BMEVIAUMA21	Common Subject	3	mid-semester mark
5		Main Specialization Subject A2	2 1	exam
5		Main Specialization Laboratory A1	3	mid-semester mark
5		Secondary Specialization Subject B	2 1	exam
5	BMEVI**ML11	Project Laboratory 2	3	mid-semester mark pre-requisite: Project laboratory 1
2	BMEGT*****	Human & Economic Science	2	mid-semester mark
0		Summer Internship		signature
3rd semester (spring)
Credits	Subject code	Subject name	Contact hours L S Lab	Requirement
5		Main Specialization Laboratory A2	3	mid-semester mark
5		Main Specialization Subject B	2 1	exam
5		Main Specialization Subject C	2 1	exam
4		Secondary Specialization Laboratory A	3	mid-semester mark
2	BMEVI******	Free Elective Subject	2	mid-semester mark
10	BMEVI**MT10	Diploma Thesis Design 1	3	mid-semester mark pre-requisite: Project laboratory 2
4th semester (fall)
Credits	Subject code	Subject name	Contact hours L S Lab	Requirement
2	BMEVI******	Free Elective Subject	2	mid-semester mark
2	BMEVI******	Free Elective Subject	2	mid-semester mark
2	BMEGT*****	Human & Economic Science	2	mid-semester mark
2	BMEGT*****	Human & Economic Science	2	mid-semester mark
20	BMEVI**MT11	Diploma Thesis Design 2	7	mid-semester mark pre-requisite: Diploma Thesis Design 1

Main Specialization Subjects

	Data Science and Artifical Intelligence	Software Engineering
Main Specialization Subject A1	BMEVIMIMA27 Machine Learning	BMEVIAUMA22 Model-based Software Development
Main Specialization Subject A2	BMEVITMMA19 Deep Learning	BMEVIAUMA24 Business Intelligence
Main Specialization Subject B	BMEVIMIMB09 Intelligent Data Analysis and Decision Support	BMEVIAUMB10 Software Development in Industry
Main Specialization Subject C	BMEVIMIMB10 Artificial Intelligence and Data Analytics	BMEVIMIMB10 Artificial Intelligence and Data Analytics
Main Specialization Laboratory A1	BMEVITMMA18 Machine Learning Use-case Laboratory	BMEVIAUMA23 Model-based Software Development Laboratory
Main Specialization Laboratory A2	BMEVITMMB10 Advanced Data Analysis Methods Laboratory	BMEVIAUMB09 Business Intelligence Laboratory
Project Laboratory 1	BMEVIMIML10 or BMEVITMML10	BMEVIAUML10
Project Laboratory 2	BMEVIMIML11 or BMEVITMML11	BMEVIAUML11
Diploma Thesis Design 1	BMEVIMIMT10 or BMEVITMMT10	BMEVIAUMT10
Diploma Thesis Design 2	BMEVIMIMT11 or BMEVITMMT11	BMEVIAUMT11

Secondary Specialization Subjects

	Quantum Informatics	Smart City
Secondary Specialization Subject A	BMEVIHIMA24 Quantum Computers and Their Applications	BMEVITMMA15 Smart City Infocommunication Technologies
Secondary Specialization Subject B	BMEVIHIMA25 Quantum Communication Networks	BMEVITMMA16 Smart City Services and Applications
Secondary Specialization Laboratory A	BMEVIHIMB10 Quantum Informatics Laboratory	BMEVITMMB09 Smart City Laboratory