

Faculty of Electrical Engineering and Informatics

IMPORTANT NOTES

If for one subject you can find several different types (lecture, practice, laboratory) of courses then please choose one and only one course from each type in order to be able to perform the subject's requirements successfully. Civil Engineering courses are on the website separately. Courses chosen from the offer of Faculty of Civil Engineering will be checked and arranged individually by the departmental coordinator.

Subject code	Subject name		Requirement	ECTS credit
BMEVIEAV99	Solar Cells and Renewable Energy Sources		Exam	4
Course type	Course code	Course language	Timetable information	
Lecture	a1	English	TUE:12:15-14:00(QB309); THU:12:15-14:00(QB309)	

This course gives a short description of the well-known and generally used renewable energy sources, During the classes the students can get acquainted with socio-economic impacts, basic environment protection principles related to renewable energy sources and are provided with basics of device physics, device construction and manufacturing processes, especially that of solar cells. Besides other renewable energy source the course is focusing on usage of solar energy especially through photo-voltaic devices and the semiconductor aspects of these devices.

Subject code	Subject name		Requirement	ECTS credit
BMEVIHIAA03	Computer Architectures		Exam	5
Course type	Course code	Course language	Timetable information	
Lecture	EA	English	WED:08:15-10:00(IE220); WED:08:15-10:00(IE220); THU:10:15-12:00(IE007)	
Practice	EG	English	THU:10:15-12:00(IE007)	

Subject code	Subject name		Requirement	ECTS credit
BMEVIHIAB03	Electronics 1		Exam	5
Course type	Course code	Course language	Timetable information	
Lecture	E_ERASMUS	English	WED:14:15-16:00(IE220)	
Practice	G_ERASMUS	English	WED:16:15-18:00(IE220)	

Subject code	Subject name		Requirement	ECTS credit
BMEVIHIAV34	Security and Privacy: an Economic Approach		Mid-semester mark	2
Course type	Course code	Course language	Timetable information	
Lecture	EA	English	WED:12:15-14:00(IB142)	

Subject code	Subject name		Requirement	ECTS credit
BMEVIHIAV35	Privacy-Preserving Technologies		Mid-semester mark	2
Course type	Course code	Course language	Timetable information	
Lecture	E_ERASMUS	English	THU:12:15-14:00(QBF09)	

<https://portal.vik.bme.hu/kepzes/targyak/VIHIAV35/en/>

This course provides an introduction into the practical problems of data protection and privacy. Students can develop skills of understanding and assessing privacy threats and designing countermeasures. The course focuses on the problem of unwanted personal and sensitive data leakage from different information sources (e.g., large datasets, web-tracking, encrypted traffic, source/binary code, machine learning models), and its detection as well as mitigations using Privacy Enhancing Technologies (PETs). The objective of the course is to provide skills needed by Data Protection Officers (DPO) and also required by the European General Data Protection Regulation (GDPR).

Subject code	Subject name		Requirement	ECTS credit
BMEVIHIAV37	V2X Communication Technologies of Autonomous Vehicles		Exam	4
Course type	Course code	Course language	Timetable information	
Lecture	EA	English	TUE:12:15-14:00(IB111); THU:12:15-13:00(IB142)	
Practice	GA	English	THU:13:15-14:00(IB142)	
Subject code	Subject name		Requirement	ECTS credit
BMEVIHIAV39	Administrating Computer Networks in Practice I.		Mid-semester mark	2
Course type	Course code	Course language	Timetable information	
Laboratory	LA2_ERASMUS	English	WED:16:15-18:00(IL107)	
https://portal.vik.bme.hu/kepzes/targyak/VIHIAV39/en/ The basic objective of "Administrating Computer Networks I." is to introduce the practical administration of computer networks - including network design, installation, and configuration of network devices. This subject gives the basics of "Administration Computer Networks in Practice II." (VIHIAV42) subject, thus providing adequate theoretical and practical knowledge and the way of its direct application. The students who successfully complete also the subject "Administrating Computer Networks II" acquire the knowledge and skills required for the Cisco CCNA (Cisco Certified Network Associate) certification. The certification can be obtained in authorized examination centers, independently from the University education.				
Subject code	Subject name		Requirement	ECTS credit
BMEVIHIAV51	Technical Communication in Industry and Academia		Mid-semester mark	2
Course type	Course code	Course language	Timetable information	
Lecture	EA	English	MON:12:15-14:00	
Subject code	Subject name		Requirement	ECTS credit
BMEVIHVAA03	Signals and Systems 1		Exam	6
Course type	Course code	Course language	Timetable information	
Lecture	EA	English	MON:14:15-16:00(V1501); MON:14:15-16:00(V1501); TUE:08:15-10:00(V1501)	
Practice	GA	English	TUE:08:15-10:00(V1501); THU:12:15-14:00(V1502); THU:12:15-14:00(V1501)	
Subject code	Subject name		Requirement	ECTS credit
BMEVIHVAC07	Introduction to Electromagnetic Fields		Exam	5
Course type	Course code	Course language	Timetable information	
Lecture	EA	English	WED:10:15-12:00(V1502)	
Practice	GA	English	TUE:10:15-12:00(V1502)	
Subject code	Subject name		Requirement	ECTS credit
BMEVIIIAA05	Digital Design 2		Exam	6
Course type	Course code	Course language	Timetable information	
Laboratory	AL	English	FRI:10:15-13:00(QBP)	
Lecture	AE	English	MON:12:15-14:00(IB310)	
Practice	AG	English	THU:10:15-12:00(IB310)	
Subject code	Subject name		Requirement	ECTS credit
BMEVIIIAB10	Control Engineering		Exam	5
Course type	Course code	Course language	Timetable information	
Laboratory	AL	English	THU:10:15-12:00(IL407)	
Lecture	AE	English	THU:08:15-10:00(IL407)	
Practice	AG	English	THU:10:15-12:00(IL407)	

Subject code	Subject name		Requirement	ECTS credit
BMEVIIIIM21	Robot Manipulators and Mobile Robots		Exam	5
Course type	Course code	Course language	Timetable information	
Lecture	AE	English	THU:08:15-10:00(IB410)	
Practice	AG	English	THU:14:15-16:00(IL406)	

Subject code	Subject name		Requirement	ECTS credit
BMEVITMAB05	Infocommunications		Exam	6
Course type	Course code	Course language	Timetable information	
Lecture	AE1	English	WED:12:15-14:00(E407); WED:12:15-14:00(E407); THU:12:15-14:00(E407)	
Practice	AG1	English	FRI:12:15-14:00(E407)	

Subject code	Subject name		Requirement	ECTS credit
BMEVITMAB06	Communication Networks		Exam	7
Course type	Course code	Course language	Timetable information	
Laboratory	ALER	English	MON:14:15-18:00	
Lecture	AER	English	TUE:14:15-16:00(QBF09); WED:08:15-10:00(QBF09)	

<https://portal.vik.bme.hu/kepzes/targyak/VITMAB06/en/>

Subject code	Subject name		Requirement	ECTS credit
BMEVITMAD01	Information Systems Management		Mid-semester mark	5
Course type	Course code	Course language	Timetable information	
Laboratory	AL1	English	MON:14:15-18:00(R4L,R4M)	
Lecture	AE1	English	TUE:10:15-12:00(QBF09)	

Subject code	Subject name		Requirement	ECTS credit
BMEVITMMB03	Engineering Management		Exam	4
Course type	Course code	Course language	Timetable information	
Lecture	AE1	English	FRI:08:15-12:00(QBF09)	

Engineering management (EM) in the knowledge-based society. Definition, role and areas of the EM. The evolution of the EM discipline. Peculiarities, generic trends and EM of the information, communication and electronic media technologies (ICT). Managerial elements of the engineering activity. Components and principles of the managerial activity. Managerial situations, methods and tools. Strategic management. Strategy types and parts. Business strategic planning methods. Classes of competitive strategies. Implementation of strategy: success factors, progress tracing. Methods of the strategic direction and control. Complex engineering decision problems, customer-oriented and systemic approaches, solutions, procedures. Planning and allocation of resources, multi-project management. Management of organizations. Organization types in the ICT sector. Lifecycle, decision culture of organizations, change management. Managing cooperation of organizations, complex working groups. Knowledge management. Knowledge process: accumulation, internalization, adaptation, externalization. Competence. Knowledge sharing and transfer. Knowledge based systems. Types of the intellectual property, principles of intellectual property rights. Open access software. Exploitation of the intellectual properties. Intellectual public utilities. ICT specific EM. Technology management. Technological planning, forecast, transfer, launching, change. Making technology vision, analyzing driving forces, scenarios. Technology-driven business strategies. Corporate ICT functions. Application of the ICT in shaping new business strategies, global work-flows, efficient organization structures. Innovation management. Goals of research, development and innovation. Innovation models and metrics. Management of the innovation process, quality and risks. Innovation chain: university-industry partnership, role of the government. Multi-tier organization and operation of the research-development-innovation management. Innovation financing. National and EU sources, grants, funds, tenders. Development projects. Technological incubators, innovation centers, start-up companies, technological consortia in the ICT sector. Product management. Goals and process of the product development. Markets of the ICT products and services. Market players, competitive environment. Market segmentation. Life-cycle of the product, and its management. Product pricing, price-sensitivity of the customers. Market-research, sale and sale-support methods. Business process management. Analyzing, planning, regulating, improving and transforming corporate business process. Criteria of the process-based management systems. Methods for developing processes. IT in the corporate value creation. Customer relationship management (CRM), operation support systems, supply chain management, business continuity management. Special business functions (e.g. billing), industry-specific systems, IT system architecture of telecommunication service providers. Regulatory environment. Sector regulation. Goals and principles of the regulation in general and in the networked and public service sectors.

Competition regulation, consumer protection. Regulatory institutions and procedures, ex-ante and ex-post regulation, self-regulation, public hearing, standards. Regulation of the information and communication technologies and markets. Technology and market regulatory models in the ICT sector. Regulatory tasks for deploying the convergence of the telecommunications, information and media technology sectors. Community and national regulation of the electronic communications network and services. Framework and specific directives. Rules for the cooperation of the network operators and service providers. Regulation for managing scarce resources, frequency, number and address management. Concept for regulating information security, data protection and content.
<https://portal.vik.bme.hu/kepzes/targyak/VITMMB03/en/>

Subject code	Subject name		Requirement	ECTS credit
BMEVIVEAB03	Power Engineering		Mid-semester mark	4
Course type	Course code	Course language	Timetable information	
Laboratory	2425_2_VIVE AB03_lab_angol	English	MON:14:15-18:00	
Lecture	2425_2_VIVE AB03_elm_angol	English	WED:08:15-10:00(V1103)	
Practice	2425_2_VIVE AB03_gyak_angol	English	FRI:10:15-12:00(V1404)	

The aim of the course is to lecture basic knowledge of power systems, which are necessary for all electrical engineers, and are also a foundation for students taking power system engineering major. Introduction of the structure and operation of power systems, organised along the operation principles of elements and subsystems of the network. Representation of power systems, basic methods of examination of symmetrical operation. Detailing of the most important questions of asymmetrical operation from the aspect of distribution and consumer networks. Requirements of power quality and security of supply. Introduction of the basic principles of frequency and voltage regulation in the electric power system. Overview on the paradigm shift in the distinctive fields of power system engineering (production, transmission, service, environmental effects), the smart grid concept and other actual trends.

Subject code	Subject name		Requirement	ECTS credit
BMEVIVEMA15	Power Systems Operation and Control		Exam	5
Course type	Course code	Course language	Timetable information	
Lecture	2425_2_VIVE MA15_elm_angol	English	WED:14:15-16:00(V1404)	
Practice	2425_2_VIVE MA15_gyak_angol	English	THU:14:15-16:00(V1404)	

The course is intended to provide theoretical knowledge and practical skills in the following fields: system approach of power system design, operation and control, understanding of related physical phenomena and processes and devices capable of influencing these processes, application of the theoretical knowledge in computer aided design, control and safe operation.

Subject code	Subject name		Requirement	ECTS credit
BMEVIVEMA22	Intelligent Buildings and Lighting Systems		Exam	5
Course type	Course code	Course language	Timetable information	
Lecture	2425_2_VIVE MA22_elm_angol	English	WED:10:15-12:00(E306ab)	
Practice	2425_2_VIVE MA22_gyak_angol	English	THU:14:15-16:00(V1103)	

Introduce the students to the possibilities of automating small and large buildings. Within the scope of the subject, we deal in more detail with the elements of central building engineering and the possibilities of their automation, the possibilities of automating the comfort areas of the building, the operation and structure of the bus systems used to implement the various automation systems. In connection with the automation of lighting systems, we also examine the requirements of different types of light sources for automation.

Subject code	Subject name		Requirement	ECTS credit
BMEVIVEMB04	Power System Transients		Exam	5
Course type	Course code	Course language	Timetable information	
Lecture	2425_2_VIVE MB04_elm_a ngol	English	TUE:10:15-12:00(V1103)	
Practice	2425_2_VIVE MB04_gyak_ angol	English	THU:14:15-16:00	
<p>The aim of the subject is to learn about the causes of electromagnetic transients in the electricity system, the physics of the processes and the consequences of transients. The lectures are intended to provide a deeper understanding of the processes that occur during abnormal operating conditions and short circuits, the design of surge protection, and the operation of some advanced solutions of the power system. The exercises aim to introduce methods for building a simplified physical picture and computational procedures and techniques for simulating transients.</p>				