Recomended pass through the study plan

Name of the pass: Specialization Technological Systems - Passage through study

Faculty/Institute/Others: Faculty of Electrical Engineering

Department:

Pass through the study plan: Electrical Engineering, Power Engineering and Management - Technological

Systems

Branch of study guranteed by the department: Welcome page

Guarantor of the study branch:

Program of study: Electrical Engineering, Power Engineering and Management

Type of study: Follow-up master full-time

Note on the pass:

Coding of roles of courses and groups of courses:

P - compulsory courses of the program, PO - compulsory courses of the branch, Z - compulsory courses, S - compulsory elective courses, PV - compulsory elective courses, F - elective specialized courses, V - elective courses, T - physical training courses

Coding of ways of completion of courses (KZ/Z/ZK) and coding of semesters (Z/L):

KZ - graded assesment, Z - assesment, ZK - examination, L - summer semester, Z - winter semester

Number of semester: 1

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
BEZM	Safety in Electrical Engineering for a master's degree Vladimír K la, Radek Havlí ek, Ivana Nová, Josef ernohous Radek Havlí ek Vladimír K la (Gar.)	Z	0	2BP+2BC	Z	Р
B1M15IAP	Engineering Applications Jan Kyncl Jan Kyncl (Gar.)	Z,ZK	5	2P+2C	Z	Р
B1M13JAS1	Quality and Reliability Zbyn k Plachý, Pavel Mach, Denis Froš, Martin Molhanec Pavel Mach Pavel Mach (Gar.)	Z,ZK	6	2P+2C	Z	Р
B1M15PPE1	Elements and Operation of Electrical Power Systems Ivo Doležel, Zden k Müller Zden k Müller (Gar.)	Z,ZK	5	2P+2S	Z	Р
B1M14SSE	Machinery and Structures of Power Plants Petr Ko árník, Ji í Š astný Petr Ko árník Petr Ko árník (Gar.)	Z,ZK	5	2P+2C	Z	Р
B1M13EKP	Ecology and materials Ivan Kudlá ek, Eva Horynová, Jan Weinzettel, Branislav Dzur ák Ivan Kudlá ek Ivan Kudlá ek (Gar.)	Z,ZK	5	2P+2L	Z	PZ
B1M13SVS	Simulation of Production Sytems Pavel Mach, Jan Zemen Pavel Mach Pavel Mach (Gar.)	Z,ZK	5	2P+2C	Z	PZ

Number of semester: 2

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
B1M16EKE1	Economy of Power Industry	Z,ZK	5	2P+2C	L	Р
B1M13MAD	Control methods and testing in electrotechnology	Z,ZK	5	2P+2L	L	PZ
B1M15TVN	High Voltage Engineering	Z,ZK	5	2P+2L	L	PZ
B1M14TVM	Theory and Application of Power Converters	Z,ZK	5	2P+2L	L	PZ
2018_MEEMPV1	Povinn volitelné p edm ty specializace B1M16EUE1,B1M15ELS, (see the list of groups below)	Min. cours. 2 Max. cours. 4	Min/Max 10/20			PV

Number of semester: 3

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
B1MPROJ	Individual project Josef ernohous, Jan Kyncl, Zden k Müller, Jan Jandera, Karel Künzel, Ivana Beshajová Pelikánová, Jan Bauer, Ji í Vaší ek, Old ich Starý Josef ernohous Jan Jandera (Gar.)		5	0p+4s	Z	Р
B1M13AEZ	Application of Electrochemical Sources Václav Knap, Václav Papež, Pavel Hrzina Václav Knap Václav Knap (Gar.)	Z,ZK	5	2P+2L	Z	Р
B1M13ASS	Solar Systems Application Vít zslav Benda, Jakub Holovský Jakub Holovský Vít zslav Benda (Gar.)	Z,ZK	5	2P+2L	Z	PZ
B1M14ESP	Electric Machinery and Apparatus Ond ej Lip ák, Pavel Mindl Pavel Mindl Pavel Mindl (Gar.)	Z,ZK	5	2P+2L	Z	PZ
B1M15PRE1	Transmission and Distribution of Electricity Ivo Doležel, Zden k Müller, Ladislav Musil Zden k Müller (Gar.)	Z,ZK	5	2P+2S	Z	PZ
2018_MEEMH	Humanitní p edm ty B0M16FIL,B0M16HVT, (see the list of groups below)	Min. cours. 1 Max. cours.	Min/Max 5/5			Р

Number of semester: 4

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
BDIP25	Diploma Thesis	Z	25	22s	L	Р
2018_MEEMVOL	Volitelné odborné p edm ty	Min. cours.	Min/Max			V
		0	0/999			v

List of groups of courses of this pass with the complete content of members of individual groups

Kód		Name of the group of group (for specification	courses and on see here o	codes of members of this below the list of courses)	f this Completion Credits Scope			Semester R	Role	
2018_MI	ЕЕМН	н	umanitní p e	dm ty		cours. 1 cours. 1	Min/M			Р
B0M16FIL		I.	B0M16HVT	History of science and technolog		B0M16H	SD1	History of eco	nomy and socia	al st
B0M16PSM	Psycholog	у	A003TV	Physical Education		B0M16T	M16TEO Theology			
2018_ME	EMPV1	Povinn vol	litelné p edm	ty specializace		cours. 2 cours. 4	Min/M			PV
B1M16EUE1	Economy of	of Energy Use	B1M15ELS	Electrical Light		B1M14M	IDS1	Modeling of D	ynamical Syste	ms
B1M13VSE	Power com	ponents in electrical e								
2018_MEI	EMVOL	Volite	elné odborné	p edm ty	Min.	cours. 0	Min/M 0/99			V

List of courses of this pass:

Code	Name of the course	Completion	Credits
A003TV	Physical Education	Z	2
B0M16FIL		Z,ZK	5

B0M16HSD1	History of economy and social studies	Z,ZK	5
This subject deals v	with the history of the Czech society in the 19th - 21th centuries. It follows the forming of the Czech political representation, its aims a the social and cultural development and coexistence of the various ethnical groups in the Czech countries.	nd achieved result	ts as well as
B0M16HVT	History of science and technology 2	Z,ZK	5
This subject traces	historical developments in electrical engineering branches in the world and in the Czech Lands. Its ultimate goal is to stimulate stude		history and
traditions of the sul	oject, while highlighting the developments in technical education and professional organizations, the process of shaping scientific life engineers	and the influence	of technical
B0M16PSM	Psychology	Z,ZK	5
B0M16TEO	Theology	Z,ZK	5
	les to students the basic orientation in christian theology and requires no special previous education. After short philosophic lecture the subject is determined not only to believer students who want to know the reliable theologic grounding but also above all to ones who religion from which graws our civilization up.	_	-
B1M13AEZ	Application of Electrochemical Sources	Z.ZK	5
	ction to chemical reactions commonly present in electrochemical sources, the technologies and manufacturing of commonplace accu	,	1
cells are discusse	d in detail. In the course, there is presented the current state of the field of batteries for different types of applications - electromobility	, stationary backu	ıp systems
	Emphasis is also placed on the trends in simultaneously using of battery storage for balancing network characteristics, especially in		1
B1M13ASS	Solar Systems Application	Z,ZK	5
Solar energy. Photo	voltaic phenomena. Photovoltaic cells and modules and their characteristics. Photovoltaic systems and their applications. Photo-therm power stations. Significance, economic and environmental aspects of solar energy exploitation.	ial phenomena.Pr	noto-therma
B1M13EKP	Ecology and materials	Z,ZK	5
	logy from the perspective of ecology. Environmental assessment of the various types of surface protection. Environmental aspects of	•	1
	mental impacts of electrical production. Ekodesign proposal of the electrical product. Principles of the proposal product for a difficult op	-	
	of electrical waste.		
B1M13JAS1	Quality and Reliability	Z,ZK	6
• • • • • • • • • • • • • • • • • • • •	definitions from the area of quality and reliability and their control, philosophy of quality, systems of quality control in the world. Reliabi		•
	e area of reliability, basic distributions used in reliability and their basic characteristics. Back-up using a warm and cold standby, types		
-	nents and systems, calculation of reliability using composition and decomposition. and using a method of a list. Basic statistical method nagerial tools for quality control. Techniques FMEA and QFFD, house of quality. Capability of a process. Taguchi loss function. Audits.		
B1M13MAD	Control methods and testing in electrotechnology	Z,ZK	5
	the needs of electrical production and research. It discussed diagnostic of materials and measurements of material properties, including the needs of electrical production and research. It discussed diagnostic of materials and measurements of material properties, including the needs of electrical production and research.	,	_
	parameters of production and work environment. The subject also includes testing safe function of products and evaluating the obtain	ned data.	
B1M13SVS	Simulation of Production Sytems	Z,ZK	5
	sed at methods of static and dynamic models of processes and systems forming. Basic types of models are described and characteric		-
aided generation of	n the basis of knowledge of relationships between parameters, or using an experimental way. Factorial experiments for qualitative varia If mathematical models and simulation of dynamic behavior of processes and systems are described. Basic methods of component n Is are presented. The application on computer modeling and simulation of electrical, thermal and mechanical systems in power electri	nodels compilation	n, assembly
	lectures.	congressioning co	
B1M13VSE	Power components in electrical engineering	Z,ZK	5
Power semicono	luctor device (diodes, BJTs, thyristors, MOSFETs and IGBTs) and integraed structures (modules). Structures, function, characteristic	s and parameters	, Passive
D41444E0D	components of powet electronic. Connection of devices in parallel and in series.	7 71/	
B1M14ESP	Electric Machinery and Apparatus ed on contact and solid-state switching devices in LV networks. Basic topologies AC switches and stress of their components, system	Z,ZK	5
	rotection circuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. Funda		
transformer effici	ency, voltage drop. Transients - switch to the network, a short circuit. Mathematical model of synchronous and asynchronous machine starting and speed control. Influence of harmonic magnetic field. Single-phase induction motor. Work synchronous machine on a netw capacity.	s. A rotating mag	netic field.
B1M14MDS1	Modeling of Dynamical Systems	Z,ZK	5
	ith combining knowledge of the dynamics of rigid bodies, fluid mechanics, aerodynamics, gas dynamics and thermodynamics in the coordinate of dynamic systems. Seminars are focused on assembling of numeric models in Matlab / Simulink.		1
B1M14SSE	Machinery and Structures of Power Plants	Z,ZK	5
	se is to acquaint students with forms of energy transformation in power plants, describing the function of power facilities, their structure,	properties and cha	aracteristics
B1M14TVM	Theory and Application of Power Converters	Z,ZK	5
	es on typical applications of power semiconductor converters on their sizing, switching and protection of power semiconductor converters on their sizing, switching and protection of power semiconductor converters on their sizing, switching and protection of power semiconductor converters on their sizing, switching and protection of power semiconductor converters on their sizing, switching and protection of power semiconductor converters on their sizing, switching and protection of power semiconductor converters on their sizing, switching and protection of power semiconductor converters on their sizing, switching and protection of power semiconductor converters on their sizing, switching and protection of power semiconductor converters on their sizing, switching and protection of power semiconductor converters on their sizing, switching and protection of power semiconductor converters.		
	of modulation and control strategies of power semiconductor converters and modern trends in their application in electric drives and of the control strategies of power semiconductor converters and modern trends in their application in electric drives and of the control strategies of power semiconductor converters and modern trends in their application in electric drives and of the control strategies of power semiconductor converters and modern trends in their application in electric drives and of the control strategies of power semiconductor converters and modern trends in their application in electric drives and of the control strategies of power semiconductor converters and modern trends in their application in electric drives and of the control strategies of power semiconductor converters and of the control strategies of the control st		
B1M15ELS	Electrical Light	Z,ZK	5
B1M15IAP	Engineering Applications Elements and Operation of Electrical Power Systems	Z,ZK Z,ZK	5 5
B1M15PPE1	•	Z,ZK	5
B1M15PRE1 B1M15TVN	Transmission and Distribution of Electricity	Z,ZK	5
	High Voltage Engineering		
B1M16EKE1 Fundamentals of	Economy of Power Industry financing of power companies. Cost structure of power generation and distribution. Prices and tariff systems for power, heat and gas	Z,ZK	5 stribution
	onomic evaluation and investment appraisal of the typical project in power sector. Renewable energy sources, externalities. Energy po Liberalization and power market development.	-	
	Economy of Energy Use	Z,ZK	5
B1M16EUE1	• ••	•	cocondary
Organization and	energy management of company, buildings or energy systems. Energy need and consumption, energy balance. Energy characterizat sources. Energy audit and feasibility study, optimization of energy management of energy systems. Prices and tariffs, economy and		Secondary
Organization and			5
Organization and energy B1MPROJ	sources. Energy audit and feasibility study, optimization of energy management of energy systems. Prices and tariffs, economy and	inancial analysis.	5

BDIP25	Diploma Thesis	Z	25					
Independent final	Independent final comprehensive work for the Master's degree study programme. A student will choose a topic from a range of topics related to his or her branch of study, which we have a contraction of the contraction of th							
be specified b	be specified by branch department or branch departments. The diploma thesis will be defended in front of the board of examiners for the comprehensive final examination.							
BEZM	BEZM Safety in Electrical Engineering for a master's degree							
The course provides for students of all programs periodic training guidelines for health and occupational safety and gives knowledge of electrical hazard of given branch of study.								
	Students receive indispensable qualification according to the current Directive of the Dean.							

For updated information see http://bilakniha.cvut.cz/en/f3.html Generated: day 2025-10-19, time 15:02.