### Recomended pass through the study plan

## Name of the pass: Specialization Electrical Power Engineering - Passage through study

Faculty/Institute/Others: Faculty of Electrical Engineering

Department:

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

Engineering

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
BE1M15PPE1	Elements and Operation of Electrical Power Systems Ghaeth Fandi, Zden k Müller Zden k Müller (Gar.)	Z,ZK	5	2P+2S	Z	Р
BE1M15IAP	Engineering Applications  Jan Kyncl, Ladislav Musil	Z,ZK	5	2P+2C	Z	Р
BE1M14SSE	Machinery and Structures of Power Plants Evžen Thöndel Evžen Thöndel	Z,ZK	5	2P+2C	Z	Р
BE1M13JAS1	Quality and Reliability Denis Froš, Zbyn k Plachý, Pavel Mach, Martin Molhanec Pavel Mach Pavel Mach (Gar.)	Z,ZK	6	2P+2C	Z,L	Р
BEEZM	Safety in Electrical Engineering for a master's degree Vladimír K la, Ivana Nová, Josef ernohous, Radek Havlí ek Radek Havlí ek Vladimír K la (Gar.)	Z	0	2BP+2BC	Z	Р
BE1M13EKP	Ecology and Materials Pavel Žák, Zuzana Šaršounová, Jan Weinzettel, Eva Horynová, Branislav Dzur ák, Michael Fridrich Jan Weinzettel Ivan Kudlá ek (Gar.)	Z,ZK	5	2P+2L	Z	PZ
BE1M15ETT	Electrical Heat Jan Kyncl Jan Kyncl (Gar.)	Z,ZK	5	2P+2S	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
BE1M16EKE1	Economy of Power Industry	Z,ZK	5	2P+2S	L	Р
BE1M14ESP	Electric Machinery and Apparatus Pavel Mindl, Miroslav Chomát Miroslav Chomát Pavel Mindl (Gar.)	Z,ZK	5	2P+2L	Z	PZ
BE1M15TVN	High Voltage Engineering	Z,ZK	5	2P+2L	L	PZ
BE1M15ENY	Power Plants	Z,ZK	5	2P+2S	L	PZ
		Min. cours.				
2018_MEEMEPV1	Compulsory elective subjects of the specialization BE1M16EUE1,BE1M15ELS, (see the list of groups below)	2	Min/Max			D) /
		Max. cours.	10/20			PV
		4				

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
BE1MPROJ	Individual project Zden k Müller, Jan Kyncl, Josef ernohous, Jan Jandera, Ji í Vaší ek <b>Josef</b> ernohous Jan Jandera (Gar.)	Z	5	0p+4s	Z	Р
BE1M15DEE	Distribution of Electrical Energy Ghaeth Fandi, Zden k Müller	Z,ZK	5	2P+2S	Z	PZ
BE1M13ASS	Solar Systems Application Rupendra Kumar Sharma, Jakub Holovský, Vít zslav Benda, Arao Minamau Pambo <b>Jakub Holovský</b> Vít zslav Benda (Gar.)	Z,ZK	5	2P+2L	Z	PZ
BE1M14TVM	Theory and Application of Power Converters	Z,ZK	5	2P+2L	L	PZ
BE1M15PRE1	Transmission and Distribution of Electricity Ghaeth Fandi, Zden k Müller, Ladislav Musil <b>Zden k Müller</b> Zden k Müller (Gar.)	Z,ZK	5	2P+2S	Z	PZ
2018_MEEMEH	Humanities subjects BE0M16HSD1,BE0M16HVT, (see the list of groups below)	Min. cours.  1 Max. cours.	Min/Max 5/5			PV

### 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
2019 MEEMEVOL	Florities subjects	Min. cours.	Min/Max			V
2018_MEEMEVOL	MEVOL Elective subjects	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 o group (for specificati	f courses and on see here o	I codes of members of this or below the list of courses)	Com	pletion	Credit	Scope	Semester	Role
2018_ME	ЕМЕН		lumanities su		Min.	cours. 1 cours. 1	Min/Ma			PV
BE0M16HSD1	History of 6	economy and social st	BE0M16HVT	History of science and technolog		BE0M16	FIL	Philosophy 2		
BE0M16PSM	Psychology	/	BE0M16TEO	Theology						
2018_MEE	MEPV1	Compulsory ele	ctive subjects	s of the specialization		cours. 2 cours. 4	<b>Min/Ma</b> 10/20			PV
BE1M16EUE1	Economy of	f Energy Use	BE1M15ELS	Electrical Light		BE1M14	MDS1	Modeling of D	ynamical Syste	ms
BE1M13VSE	Power com	ponents in electrical e					•			
2018_MEEMEVOL			Elective sub	jects	Min.	cours. 0	Min/Ma 0/999			٧

# List of courses of this pass:

Code	Name of the course	Completion	Credits			
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 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 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 student will be a student					
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 comprehen-					
BE0M16FIL	Philosophy 2	Z,ZK	5			

BE0M16HSD1	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	nd achieved resu	lts as well as
	the social and cultural development and coexistence of the various ethnical groups in the Czech countries.		1
BE0M16HVT	History of science and technology 2	Z,ZK	5
=	historical developments in electrical engineering branches in the world and in the Czech Lands. Its ultimate goal is to stimulate stude		-
traditions of the sub	oject, while highlighting the developments in technical education and professional organizations, the process of shaping scientific life engineers		of technical
BE0M16PSM	Psychology	Z,ZK	5
BE0M16TEO	Theology	Z,ZK	4
	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.	_	-
BE1M13ASS	Solar Systems Application	Z,ZK	5
	voltaic phenomena. Photovoltaic cells and modules and their characteristics. Photovoltaic systems and their applications. Photo-therm		_
3,	power stations. Significance, economic and environmental aspects of solar energy exploitation.		
BE1M13EKP	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
electronics. Environ	mental impacts of electrical production. Ekodesign proposal of the electrical product. Principles of the proposal product for a difficult op of electrical waste.	erating environm	ent. Disposal
BE1M13JAS1	Quality and Reliability	Z,ZK	6
Terminology and o	definitions from the area of quality and reliability and their control, philosophy of quality, systems of quality control in the world. Reliability	lity as a part of q	uality. Basic
	e area of reliability, basic distributions used in reliability and their basic characteristics. Back-up using a warm and cold standby, types ments 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.		
BE1M13VSE	Power components in electrical engineering	Z,ZK	5
Power semicond	luctor device (diodes, BJTs, thyristors, MOSFETs and IGBTs) and integraed structures (modules). Structures, function, characteristic	s and parameters	s, Passive
DE 414 450D	components of powet electronic. Connection of devices in parallel and in series.	<b>7.7</b> 1/	
BE1M14ESP	Electric Machinery and Apparatus	Z,ZK	5
	ed on contact and solid-state switching devices in LV networks. Basic topologies AC switches and stress of their components, system rotection circuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. Funda		
-	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 netwood capacity.		
BE1M14MDS1	<u> </u>	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
BE1M14SSE	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,	•	aracteristics.
BE1M14TVM	Theory and Application of Power Converters	Z,ZK	5
The course focus	es on typical applications of power semiconductor converters on their sizing, switching and protection of power semiconductor conver	ters. It also sumr	narizes the
basics of	of modulation and control strategies of power semiconductor converters and modern trends in their application in electric drives and		
BE1M15DEE	Distribution of Electrical Energy	Z,ZK	5
The course introduc	ces students into power quality principles, transmission and distribution system equipment and protection. The course covers also Sm	art grid principles	and devices
	including measurement and telecommunication systems.		_
	Electrical Light rse is to make students acquainted with most frequent applications of optical radiation and with theoretical and practical principles of door and outdoor areas, respecting necessary visual performance with emphasis on energy efficiency solutions and aspects of healt		5 systems for
BE1M15ENY	Power Plants	Z,ZK	5
	ces power plants electric circuit topologies and self-consumption equipment characteristics. There are explained steam and nuclear p	,	1
DE 414	and characteristics. Separate part is concentrated on hydro power plants principles and characteristics.	<b></b>	<del>-</del>
BE1M15ETT	Electrical Heat	Z,ZK	5
The aim is to gain k	knowledge of heat transfer, physical similarity theory, mathematical models frequently used components of energy systems (heat exclusive storage tanks, air treatment equipment). Are discussed mathematical models of induction and arc of electro-thermal equipment		nps, tnermai
BE1M15IAP	Engineering Applications	Z,ZK	5
	e aim of the course is to get an overview of solving basic mathematical problems occurring in engineering practice using computer alg		
BE1M15PPE1	Elements and Operation of Electrical Power Systems	Z,ZK	5
	ices basic technical principles of electricity transmission and distribution. There are explained parameters of power systems key elem	=	es, iransient
The course introdu		S and Hillipation	
The course introdu	illure phenomena, main principles of dimensioning and protecting, power quality and its control and electrical machines characteristic		5
The course introdu and fa BE1M15PRE1	Transmission and Distribution of Electricity	Z,ZK	5 ies to control
The course introdu and fa BE1M15PRE1		Z,ZK	_
The course introdu and fa BE1M15PRE1 The course introduc	Transmission and Distribution of Electricity ces particular topics concerning transmission and distribution systems, mainly load flow solutions, specific aspects of system steady states these states. The course also deals with synchronous generators characteristics in different operational states.	Z,ZK ates and possibilit	ies to control
The course introduce and far BE1M15PRE1 The course introduce BE1M15TVN	Transmission and Distribution of Electricity ces particular topics concerning transmission and distribution systems, mainly load flow solutions, specific aspects of system steady sta	Z,ZK utes and possibilit	ies to control
The course introduce and far BE1M15PRE1 The course introduce BE1M15TVN The course control of the course contro	Transmission and Distribution of Electricity  ces particular topics concerning transmission and distribution systems, mainly load flow solutions, specific aspects of system steady states these states. The course also deals with synchronous generators characteristics in different operational states.  High Voltage Engineering  ains the fundamental theories of high voltage engineering with respect to application in electrical power engineering. The knowledge nique of high voltages and currents, properties of insulation systems, diagnostics methods and electrical discharges and their elimination.	Z,ZK utes and possibilit Z,ZK of high voltage go	5 enerators,
The course introduce and far BE1M15PRE1 The course introduce BE1M15TVN The course continues and the course course and the course continues and the course continues and the course course and the course course course and the course course course course and the course c	Transmission and Distribution of Electricity  bes particular topics concerning transmission and distribution systems, mainly load flow solutions, specific aspects of system steady states these states. The course also deals with synchronous generators characteristics in different operational states.  High Voltage Engineering  ains the fundamental theories of high voltage engineering with respect to application in electrical power engineering. The knowledge nique of high voltages and currents, properties of insulation systems, diagnostics methods and electrical discharges and their elimination exercises in high voltage laboratory are included.	Z,ZK ates and possibilit Z,ZK of high voltage gration. The practical	5 enerators, al laboratory
The course introduce and far BE1M15PRE1 The course introduce BE1M15TVN The course continues are measurement tech	Transmission and Distribution of Electricity  bes particular topics concerning transmission and distribution systems, mainly load flow solutions, specific aspects of system steady states these states. The course also deals with synchronous generators characteristics in different operational states.  High Voltage Engineering  ains the fundamental theories of high voltage engineering with respect to application in electrical power engineering. The knowledge nique of high voltages and currents, properties of insulation systems, diagnostics methods and electrical discharges and their eliminate exercises in high voltage laboratory are included.  Economy of Power Industry	Z,ZK ates and possibilit Z,ZK of high voltage gration. The practica	5 enerators, al laboratory
The course introduce and far BE1M15PRE1 The course introduce BE1M15TVN The course continue measurement tech BE1M16EKE1 Fundamentals of	Transmission and Distribution of Electricity  bes particular topics concerning transmission and distribution systems, mainly load flow solutions, specific aspects of system steady states these states. The course also deals with synchronous generators characteristics in different operational states.  High Voltage Engineering  ains the fundamental theories of high voltage engineering with respect to application in electrical power engineering. The knowledge nique of high voltages and currents, properties of insulation systems, diagnostics methods and electrical discharges and their elimination exercises in high voltage laboratory are included.	Z,ZK ates and possibilit Z,ZK of high voltage gration. The practical Z,ZK production and co	5 enerators, al laboratory 5 listribution.

BE1M16EUE1	Economy of Energy Use	Z,ZK	5					
Organization and	Organization and energy management of company, buildings or energy systems. Energy need and consumption, energy balance. Energy characterization of aggregate, secondary							
energy	energy sources. Energy audit and feasibility study, optimization of energy management of energy systems. Prices and tariffs, economy and financial analysis.							
BE1MPROJ	Individual project	Z	5					
Independent work	Independent work in the form of a project. A student will choose a topic from a list of topics specified by branch department. The project will be defended within the framework of a							
	subject.							
BEEZM	Safety in Electrical Engineering for a master's degree	Z	0					
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 <a href="http://bilakniha.cvut.cz/en/f3.html">http://bilakniha.cvut.cz/en/f3.html</a> Generated: day 2025-10-19, time 15:02.