# Study plan

# Name of study plan: Electrical Engineering, Power Engineering and Management -Electrical Drives

Faculty/Institute/Others: Faculty of Electrical Engineering Department: Branch of study guaranteed by the department: Welcome page Garantor of the study branch: Program of study: Electrical Engineering, Power Engineering and Management Type of study: Follow-up master full-time Required credits: 116 Elective courses credits: 4 Sum of credits in the plan: 120 Note on the plan:

Name of the block: Compulsory courses in the program Minimal number of credits of the block: 56 The role of the block: P

Code of the group: 2018\_MEEMEP Name of the group: Compulsory subjects of the programme Requirement credits in the group: In this group you have to gain 31 credits Requirement courses in the group: In this group you have to complete 6 courses Credits in the group: 31 Note on the group:

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 Tomáš Králík, Július Bemš Tomáš Králík Tomáš Králík (Gar.)	Z,ZK	5	2P+2S	L	Р
BE1M15PPE1	Elements and Operation of Electrical Power Systems Zden k Müller, Jan Hlavá ek Zden k Müller (Gar.)	Z,ZK	5	2P+2S	Z	Р
BE1M15IAP	Engineering Applications Jan Kyncl, Ladislav Musil	Z,ZK	5	2P+2C	Z	Ρ
BE1MPROJ	Individual project Ji í Vaší ek, Zden k Müller, Jan Kyncl, Jan Jandera, Josef ernohous Josef ernohous Jan Jandera (Gar.)	Z	5	0p+4s	Z	Ρ
BE1M14SSE	Machinery and Structures of Power Plants Evžen Thöndel Evžen Thöndel	Z,ZK	5	2P+2C	Z	Ρ
BE1M13JAS1	Quality and Reliability Pavel Mach, Martin Molhanec Pavel Mach Pavel Mach (Gar.)	Z,ZK	6	2P+2C	Z,L	Р

Characteristics of the courses of this group of Study Plan: Code=2018\_MEEMEP Name=Compulsory subjects of the programme

BE1M16EKE1	Economy of Power Industry	Z,ZK	5	
Fundamentals of financ	ing of power companies. Cost structure of power generation and distribution. Prices and tariff systems for power, heat and ga	is production and	distribution.	
Examples of economic	evaluation and investment appraisal of the typical project in power sector. Renewable energy sources, externalities. Energy p	olicy and energy	law in CR.	
Liberalization and powe	r market development.			
BE1M15PPE1	Elements and Operation of Electrical Power Systems	Z,ZK	5	
The course introduces basic technical principles of electricity transmission and distribution. There are explained parameters of power systems key elements, steady states, transient				
and failure phenomena,	main principles of dimensioning and protecting, power quality and its control and electrical machines characteristics and util	ization.		
BE1M15IAP	Engineering Applications	Z,ZK	5	
The aim of the course is to get an overview of solving basic mathematical problems occurring in engineering practice using computer algebra systems				
BE1MPROJ	Individual project	Z	5	
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 defer	ded within the fra	mework of a	
subject.				
BE1M14SSE	Machinery and Structures of Power Plants	Z,ZK	5	
The aim of the course is	to acquaint students with forms of energy transformation in power plants, describing the function of power facilities, their structu	ure, properties and	d characteristics.	
BE1M13JAS1	Quality and Reliability	Z,ZK	6	
Terminology and definit	ons from the area of quality and reliability and their control, philosophy of quality, systems of quality control in the world. Relia	ability as a part of	f quality. Basic	
definitions from the area of reliability, basic distributions used in reliability and their basic characteristics. Back-up using a warm and cold standby, types of warm and cold standbys.				
Reliability of components and systems, calculation of reliability using composition and decomposition. and using a method of a list. Basic statistical methods and tools joined with quality				
control, managerial tool	s for quality control. Techniques FMEA and QFFD, house of quality. Capability of a process. Taguchi loss function. Audits. Sta	tistical inspection		

## Code of the group: 2018\_MEEMEDIP Name of the group: Diploma Thesis Requirement credits in the group: In this group you have to gain 25 credits Requirement courses in the group: In this group you have to complete 1 course Credits in the group: 25

	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

#### Characteristics of the courses of this group of Study Plan: Code=2018\_MEEMEDIP Name=Diploma Thesis

BDIP25	Diploma Thesis	Z	25		
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 will					
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.					

Name of the block: Povinné p edm ty zam ení Minimal number of credits of the block: 45 The role of the block: PZ

Code of the group: 2018\_MEEMEPS Name of the group: Compulsory subjects of the specialization Requirement credits in the group: In this group you have to gain 30 credits Requirement courses in the group: In this group you have to complete 6 courses Credits in the group: 30

Note on the group:

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
BE1M13EKP	<b>Ecology and Materials</b> Pavel Žák, Zuzana Šaršounová, Jan Weinzettel, Eva Horynová, Branislav Dzur ák, Michael Fridrich <b>Jan Weinzettel</b> Ivan Kudlá ek (Gar.)	Z,ZK	5	2P+2L	z	PZ
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 Jan Hlavá ek	Z,ZK	5	2P+2L	L	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 Ji í Letti Ji í Letti Ji í Letti (Gar.)	Z,ZK	5	2P+2L	L	PZ
BE1M15PRE1	Transmission and Distribution of Electricity Zden k Müller, Ladislav Musil Zden k Müller Zden k Müller (Gar.)	Z,ZK	5	2P+2S	Z	PZ

#### Characteristics of the courses of this group of Study Plan: Code=2018\_MEEMEPS Name=Compulsory subjects of the specialization

BE1M13EKP Ecology and Materials Z,ZK 5 Electrical Technology from the perspective of ecology. Environmental assessment of the various types of surface protection. Environmental aspects of protective systems used in electronics. Environmental impacts of electrical production. Ekodesign proposal of the electrical product. Principles of the proposal product for a difficult operating environment. Disposal of electrical waste. BE1M14ESP Electric Machinery and Apparatus 7.7K The course is focused on contact and solid-state switching devices in LV networks. Basic topologies AC switches and stress of their components, systems with modern semiconductor devices and their protection circuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. Fundamentals of commutation. The transformer efficiency, voltage drop. Transients - switch to the network, a short circuit. Mathematical model of synchronous and asynchronous machines. A rotating magnetic field. Induction machine, starting and speed control. Influence of harmonic magnetic field. Single-phase induction motor. Work synchronous machine on a network. Torque, stability, overload capacity. BE1M15TVN High Voltage Engineering Z,ZK 5 The course contains the fundamental theories of high voltage engineering with respect to application in electrical power engineering. The knowledge of high voltage generators, measurement technique of high voltages and currents, properties of insulation systems, diagnostics methods and electrical discharges and their elimination. The practical laboratory exercises in high voltage laboratory are included. BE1M13ASS Solar Systems Application Z.ZK 5 Solar energy. Photovoltaic phenomena. Photovoltaic cells and modules and their characteristics. Photovoltaic systems and their applications. Photo-thermal phenomena. Photo-thermal power stations. Significance, economic and environmental aspects of solar energy exploitation. BE1M14TVM Theory and Application of Power Converters Z,ZK 5 The course focuses on typical applications of power semiconductor converters on their sizing, switching and protection of power semiconductor converters. It also summarizes the basics of modulation and control strategies of power semiconductor converters and modern trends in their application in electric drives and other applications.

BE1M15PRE1	Transmission and Distribution of Electricity	Z,ZK	5
The course introduces p	articular topics concerning transmission and distribution systems, mainly load flow solutions, specific aspects of system stead	y states and poss	ibilities to contro
these states. The cours	e also deals with synchronous generators characteristics in different operational states.		

## Code of the group: 2018\_MEEMEPPS1 Name of the group: Compulsory subjects of the specialization Requirement credits in the group: In this group you have to gain 15 credits Requirement courses in the group: In this group you have to complete 3 courses Credits in the group: 15

Note on the group		пске ропопу				
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
BE1M14REP	Control and Regulation of Electric Drives Evžen Thöndel, Radek Havlí ek Miroslav Chomát	Z,ZK	5	2P+2L	Z	PZ
BE1M14DEP	Digital Control of Electric Drives Jan Bauer	Z,ZK	5	2P+2L	L	ΡZ
BE1M14EPT1	Electric Drives and Traction Ji í Lettl	Z,ZK	5	2P+2L	Z	PZ

## Characteristics of the courses of this group of Study Plan: Code=2018\_MEEMEPPS1 Name=Compulsory subjects of the specialization

BE1M14REP	Control and Regulation of Electric Drives	Z,ZK	5		
The course is an introduction to the problems of the theory of continuous control of electrical drives and power converters. During the semester are discussed the basics of feedback					
control, transmission system, determining the stability of the system, including controller types and methods of tuning.					
BE1M14DEP	Digital Control of Electric Drives	Z,ZK	5		
The course deals with basics blocks of control computer for electric drive. It is also discussed the issue of discretization drive control and software and hardware resources needed for					
developing and debugg	ing control program for electric drive.				
BE1M14EPT1	Electric Drives and Traction	Z,ZK	5		
The course focuses on the principles of designing electric drives with AC motors in different ways and different types of load, reliability, design for explosive environments and for special					
purposes and the necessary technical documentation. Students learn the basics of electric traction drives for trams in public transport systems, electric locomotives, as well as the					
systems of hybrid cars	and electric vehicles.				

Name of the block: Compulsory elective courses Minimal number of credits of the block: 15 The role of the block: PV

Code of the group: 2018\_MEEMEPV1

Name of the group: Compulsory elective subjects of the specialization

Requirement credits in the group: In this group you have to gain at least 10 credits (at most 20) Requirement courses in the group: In this group you have to complete at least 2 courses (at most 4) Credits in the group: 10

Note on the group:

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
BE1M16EUE1	Economy of Energy Use Ji í Beranovský, Michaela Valentová Michaela Valentová Ji í Beranovský (Gar.)	Z,ZK	5	2P+2S	L	PV
BE1M15ELS	Electrical Light Marek Bálský	Z,ZK	5	2P+2L	L	PV
BE1M14MDS1	Modeling of Dynamical Systems	Z,ZK	5	2P+2C	L	PV
BE1M13VSE	Power components in electrical engineering	Z,ZK	5	2P+2L	L	PV

# Characteristics of the courses of this group of Study Plan: Code=2018\_MEEMEPV1 Name=Compulsory elective subjects of the specialization

BE1M16EUE1	Economy of Energy Use	Z,ZK	5		
Organization and energy management of company, buildings or energy systems. Energy need and consumption, energy balance. Energy characterization of aggregate, secondard					
energy sources. Energy audit and feasibility study, optimization of energy management of energy systems. Prices and tariffs, economy and financial analysis.					
BE1M15ELS	Electrical Light	Z,ZK	5		
The aim of the course is	to make students acquainted with most frequent applications of optical radiation and with theoretical and practical principles	s of resolving light	ing systems for		
indoor and outdoor area	is, respecting necessary visual performance with emphasis on energy efficiency solutions and aspects of health and safety.				
BE1M14MDS1	Modeling of Dynamical Systems	Z,ZK	5		
The course deals with combining knowledge of the dynamics of rigid bodies, fluid mechanics, aerodynamics, gas dynamics and thermodynamics in the compilation of nonlinear models					
of dynamic systems. Seminars are focused on assembling of numeric models in Matlab / Simulink.					

BE1M13VSE	Power components in electrical engineering	Z,ZK	5		
Power semiconductor device (diodes, BJTs, thyristors, MOSFETs and IGBTs) and integraed structures (modules). Structures, function, characteristics and parameters, Passive					
components of powet el	ectronic. Connection of devices in parallel and in series.				

## Code of the group: 2018\_MEEMEH Name of the group: Humanities subjects Requirement credits in the group: In this group you have to gain 5 credits Requirement courses in the group: In this group you have to complete 1 course Credits in the group: 5

Note on the group:

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
BE0M16HSD1	History of economy and social studies	Z,ZK	5	2P+2S	Z,L	PV
BE0M16HVT	History of science and technology 2	Z,ZK	5	2P+2S	Z,L	PV
BE0M16FIL	Philosophy 2 Peter Zamarovský Peter Zamarovský Peter Zamarovský (Gar.)	Z,ZK	5	2P+2S	Z,L	PV
BE0M16PSM	Psychology	Z,ZK	5	2P+2S	Z,L	PV
BE0M16TEO	Theology	Z,ZK	4	2P+2S	L	PV

#### Characteristics of the courses of this group of Study Plan: Code=2018\_MEEMEH Name=Humanities subjects

BE0M16HSD1 History of economy and social studies Z,ZK 5 This subject deals with the history of the Czech society in the 19th - 21th centuries. It follows the forming of the Czech political representation, its aims and achieved results as well as the social and cultural development and coexistence of the various ethnical groups in the Czech countries. History of science and technology 2 BE0M16HVT 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 students' interest in the history and traditions of the subject, while highlighting the developments in technical education and professional organizations, the process of shaping scientific life and the influence of technical engineers BE0M16FIL Philosophy 2 Z,ZK 5 BE0M16PSM Z,ZK 5 Psychology BE0M16TEO Theology Z,ZK 4 This subject provides to students the basic orientation in christian theology and requires no special previous education. After short philosophic lecture the basic theologic disciplines are gone through. The subject is determined not only to believer students who want to know the reliable theologic grounding but also above all to ones who want to get know Christianity - religion from which graws our civilization up.

Name of the block: Elective courses Minimal number of credits of the block: 0 The role of the block: V

Code of the group:	2018_MEEMEVOL
Name of the group:	Elective subjects
Requirement credit	s in the group:
Requirement cours	es in the group:
Credits in the group	b: 0
Note on the group:	~Student can choose arbitrary subject of themagister's program (EEM - Electrical Engineering, Power Engineering and Management, EK - Electronics and Communications, KYR - Cybernetics and Robotics, OI - Open Informatics, OES - Open Electronics Systems) which is not part of his curriculum. Student can choose with consideration of recommendation of the branch guarantee.You can find a selection of optional courses organized by the departments on the web site http://www.fel.cvut.cz/cz/education/volitelne-predmety.html

## List of courses of this pass:

Code	Name of the course	Completion	Credits	
BDIP25	Diploma Thesis	Z	25	
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 will				
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.				

BE0M16FIL	Philosophy 2	Z,ZK	5
BE0M16HSD1	History of economy and social studies	Z,ZK	5
	ith 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.	and achieved resu	lts as well a
BEOM16HVT	History of science and technology 2	Z,ZK	5
1	nistorical developments in electrical engineering branches in the world and in the Czech Lands. Its ultimate goal is to stimulate stude		e history a
aditions of the subje	ect, while highlighting the developments in technical education and professional organizations, the process of shaping scientific life engineers	and the influence	e of technic
BEOM16PSM	Psychology	Z,ZK	5
BE0M16TEO	Theology	Z,ZK	4
This subject provide:	es to students the basic orientation in christian theology and requires no special previous education. After short philosophic lecture t In subject is determined not only to believer students who want to know the reliable theologic grounding but also above all to ones who	the basic theologi	c discipline
	- religion from which graws our civilization up.		1
BE1M13ASS	Solar Systems Application	Z,ZK	5
Solar energy. Photovo	oltaic phenomena. Photovoltaic cells and modules and their characteristics. Photovoltaic systems and their applications. Photo-thern	nal phenomena.P	hoto-thern
	power stations. Significance, economic and environmental aspects of solar energy exploitation.	7 71/	<b>_</b>
BE1M13EKP	Ecology and Materials	Z,ZK	5
	by from the perspective of ecology. Environmental assessment of the various types of surface protection. Environmental aspects of nental impacts of electrical production. Ekodesign proposal of the electrical product. Principles of the proposal product for a difficult op	-	
	of electrical waste.	7 71/	
BE1M13JAS1	Quality and Reliability	Z,ZK	6
0,	efinitions from the area of quality and reliability and their control, philosophy of quality, systems of quality control in the world. Reliab	, , ,	
eliability of compone	area of reliability, basic distributions used in reliability and their basic characteristics. Back-up using a warm and cold standby, types ents and systems, calculation of reliability using composition and decomposition. and using a method of a list. Basic statistical metho agerial tools for quality control. Techniques FMEA and QFFD, house of quality. Capability of a process. Taguchi loss function. Audits	ds and tools joine	d with qua
BE1M13VSE	Power components in electrical engineering	Z,ZK	5
	ictor device (diodes, BJTs, thyristors, MOSFETs and IGBTs) and integraed structures (modules). Structures, function, characteristic		
	components of powet electronic. Connection of devices in parallel and in series.		
BE1M14DEP	Digital Control of Electric Drives	Z,ZK	5
he course deals with	th basics blocks of control computer for electric drive. It is also discussed the issue of discretization drive control and software and h	ardware resource	s needed
	developing and debugging control program for electric drive.		,
BE1M14EPT1	Electric Drives and Traction	Z,ZK	5
he course focuses o			
	on the principles of designing electric drives with AC motors in different ways and different types of load, reliability, design for explosive		-
BE1M14ESP	ecessary technical documentation. Students learn the basics of electric traction drives for trams in public transport systems, electric systems of hybrid cars and electric vehicles. 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 otection circuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. Fund	c locomotives, as Z,ZK ns with modern se lamentals of comr	well as the 5 5 emiconduct nutation. T
purposes and the normal methods and the normal methods and the course is focused levices and their prototransformer efficient	ecessary technical documentation. Students learn the basics of electric traction drives for trams in public transport systems, electric systems of hybrid cars and electric vehicles. 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 otection circuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. Fund ncy, 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 network	c locomotives, as Z,ZK ns with modern se lamentals of comr es. A rotating mag	well as the 5 emiconduct nutation. T gnetic field.
purposes and the normal sector of the sector	hecessary technical documentation. Students learn the basics of electric traction drives for trams in public transport systems, electric systems of hybrid cars and electric vehicles. 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 otection circuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. Fund ncy, voltage drop. Transients - switch to the network, a short circuit. Mathematical model of synchronous and asynchronous machine tarting and speed control. Influence of harmonic magnetic field. Single-phase induction motor. Work synchronous machine on a netw capacity.	c locomotives, as Z,ZK ns with modern se lamentals of comr es. A rotating mag vork. Torque, stab	well as the 5 emiconduc nutation. T gnetic field.
purposes and the network of the second secon	An eccessary technical documentation. Students learn the basics of electric traction drives for trams in public transport systems, electric systems of hybrid cars and electric vehicles. 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 otection circuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. Fund ncy, voltage drop. Transients - switch to the network, a short circuit. Mathematical model of synchronous and asynchronous machine trating and speed control. Influence of harmonic magnetic field. Single-phase induction motor. Work synchronous machine on a network capacity. Modeling of Dynamical Systems	c locomotives, as Z,ZK ns with modern se lamentals of comr es. A rotating mag work. Torque, stab	well as the 5 emiconduction. T gnetic field ility, overlo
purposes and the network of the second secon	hecessary technical documentation. Students learn the basics of electric traction drives for trams in public transport systems, electric systems of hybrid cars and electric vehicles. 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 otection circuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. Fund ncy, voltage drop. Transients - switch to the network, a short circuit. Mathematical model of synchronous and asynchronous machine tarting and speed control. Influence of harmonic magnetic field. Single-phase induction motor. Work synchronous machine on a network capacity. Modeling of Dynamical Systems th combining knowledge of the dynamics of rigid bodies, fluid mechanics, aerodynamics, gas dynamics and thermodynamics in the com- start basic transmission of the dynamics of rigid bodies.	c locomotives, as Z,ZK ns with modern se lamentals of comr es. A rotating mag work. Torque, stab	well as the 5 emiconduc nutation. T gnetic field ility, overlo
purposes and the normal sector of the sector	hecessary technical documentation. Students learn the basics of electric traction drives for trams in public transport systems, electric systems of hybrid cars and electric vehicles. 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 otection circuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. Fund ncy, voltage drop. Transients - switch to the network, a short circuit. Mathematical model of synchronous and asynchronous machine tarting and speed control. Influence of harmonic magnetic field. Single-phase induction motor. Work synchronous machine on a netw capacity. Modeling of Dynamical Systems h combining knowledge of the dynamics of rigid bodies, fluid mechanics, aerodynamics, gas dynamics and thermodynamics in the co of dynamic systems. Seminars are focused on assembling of numeric models in Matlab / Simulink.	c locomotives, as Z,ZK ns with modern se lamentals of comr es. A rotating mag work. Torque, stab Z,ZK ompilation of nonl	well as the 5 miconduct nutation. T gnetic field ility, overlo
purposes and the normalized purposes and the normalized process and their protection machine, stated by the course deals with the co	hecessary technical documentation. Students learn the basics of electric traction drives for trams in public transport systems, electric systems of hybrid cars and electric vehicles. 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 otection circuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. Fund ncy, voltage drop. Transients - switch to the network, a short circuit. Mathematical model of synchronous and asynchronous machine tarting and speed control. Influence of harmonic magnetic field. Single-phase induction motor. Work synchronous machine on a network capacity. Modeling of Dynamical Systems th combining knowledge of the dynamics of rigid bodies, fluid mechanics, aerodynamics, gas dynamics and thermodynamics in the com- start basic transmission of the dynamics of rigid bodies.	z,ZK ns with modern se lamentals of comr es. A rotating mag work. Torque, stab Z,ZK ompilation of nonl	well as the semiconduct nutation. T gnetic field lility, overloo 5 inear mod
purposes and the normalized statement of the second	An exercise and exercises of the dynamics of rigid bodies, fluid mechanics, aerodynamics, gas dynamics and thermodynamics in the correct of dynamic systems of rigid bodies, fluid mechanics, aerodynamics, gas dynamics and thermodynamics in the correct of the theory of continuous control of electric Drives routed on the problems of the theory of continuous control of electrical drives and power converters. During the semester are disc control, transmission system, determining the stability of the system, including controller types and methods of tuning.	c locomotives, as Z,ZK ns with modern se lamentals of comr es. A rotating mag work. Torque, stab Z,ZK ompilation of nonl Z,ZK cussed the basics	well as th 5 emiconduc nutation. T gnetic field ility, overlc 5 inear mod
purposes and the normalized statement of the second	Becessary technical documentation. Students learn the basics of electric traction drives for trams in public transport systems, electric systems of hybrid cars and electric vehicles. 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 tection circuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. Fund ncy, voltage drop. Transients - switch to the network, a short circuit. Mathematical model of synchronous and asynchronous machine tarting and speed control. Influence of harmonic magnetic field. Single-phase induction motor. Work synchronous machine on a netw capacity. Modeling of Dynamical Systems th combining knowledge of the dynamics of rigid bodies, fluid mechanics, aerodynamics, gas dynamics and thermodynamics in the co of dynamic systems. Seminars are focused on assembling of numeric models in Matlab / Simulink. Control and Regulation of Electric Drives roduction to the problems of the theory of continuous control of electrical drives and power converters. During the semester are disc	z,ZK ns with modern se lamentals of comr es. A rotating mag work. Torque, stab Z,ZK ompilation of nonl Z,ZK cussed the basics	well as th 5 emiconduc nutation. T gnetic field illity, overlo 5 inear mod 5 of feedba
purposes and the normal sector of the course is focused evices and their protection machine, states and their protection machine, states and their protection machine, states and the course deals with the course deals with the course is an intra- BE1M14REP in the course is an intra- BE1M14SSE in the course is an intra-	An experience of the dynamics of rigid bodies, fluid mechanics, aerodynamics, gas dynamics and thermodynamics in the constraint of the theory of continuous control of electric Drives roduction to the problems of the theory of continuous control of electric Drives and the semester are disc control, transmission system, determining the stability of the system, including controller types and methods of tuning. Machinery and Structures of Power Plants e is to acquaint students with forms of energy transformation in power plants, describing the function of power facilities, their structure,	c locomotives, as Z,ZK ns with modern se amentals of comr es. A rotating mag work. Torque, stab Z,ZK compilation of nonl Z,ZK cussed the basics Z,ZK properties and ch	well as the second seco
purposes and the normalized statement of the second second their protection machine, statement of the second secon	Anternation in the determining the stability of the systems and power Plants	z,ZK ns with modern se lamentals of comr es. A rotating mag work. Torque, stab Z,ZK ompilation of nonl Z,ZK cussed the basics Z,ZK properties and ch Z,ZK	well as th 5 miconduc nutation. T metic field ility, overlo 5 inear mod 5 of feedba 5 aracteristi 5
purposes and the normalized statement of the second second their protocol transformer efficient of the second se	A control and Regulation of Electric Drives Modeling of Dynamical Systems of dynamic systems are focused on assembling of numeric models in Matlab / Simulink. Control and Regulation of Electric Drives roduction to the problems of the theory of continuous control of electrical drives and power converters. During the semester are disc control, transmission system, determining the stability of the system, including controller types and methods of tuning. Machinery and Structures of Power Plants e is to acquaint students with forms of energy transformation in power plants, describing the function of power facilities, their structure, Theory and Application of Power Converters	c locomotives, as Z,ZK ms with modern se lamentals of comr es. A rotating mag work. Torque, stab Z,ZK ompilation of nonl Z,ZK cussed the basics Z,ZK properties and ch Z,ZK rters. It also sum	well as the second seco
purposes and the normalized states and the normalized states and their protocological states and the course deals with the course deals with the course is an intro- BE1M14REP inhe course is an intro- BE1M14SSE inhe aim of the course is an intro- BE1M14SSE inhe aim of the course is a states and the course is a state and the c	An example in the problems of the theory of continuous control of electrical drives and power converters. During the semester are disc control, transmission system, determining the stability of the system, including controller types and methods of tuning. Machinery and Structures of Power Plants is to acquaint students with forms 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 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 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.	c locomotives, as Z,ZK ms with modern se lamentals of comr es. A rotating mag work. Torque, stab Z,ZK ompilation of nonl Z,ZK cussed the basics Z,ZK properties and ch Z,ZK rters. It also sum	well as th 5 miconduc nutation. T metic field ility, overlo 5 inear mod 5 of feedba 5 aracteristi 5 marizes th
purposes and the normalized statement of the second	necessary technical documentation. Students learn the basics of electric traction drives for trams in public transport systems, electric systems of hybrid cars and electric vehicles. Electric Machinery and Apparatus and on contact and solid-state switching devices in LV networks. Basic topologies AC switches and stress of their components, system to tection circuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. Fund ney, voltage drop. Transients - switch to the network, a short circuit. Mathematical model of synchronous and asynchronous machine on a netw capacity. Modeling of Dynamical Systems h combining knowledge of the dynamics of rigid bodies, fluid mechanics, aerodynamics, gas dynamics and thermodynamics in the co- of dynamic systems. Seminars are focused on assembling of numeric models in Matlab / Simulink. Control and Regulation of Electric Drives roduction to the problems of the theory of continuous control of electrical drives and power converters. During the semester are disc control, transmission system, determining the stability of the system, including controller types and methods of tuning. Machinery and Structures of Power Plants e is to acquaint students with forms of energy transformation in power plants, describing the function of power facilities, their structure, Theory and Application of Power Converters s on typical applications of power semiconductor converters on their sizing, switching and protection of power semiconductor converter f modulation and control strategies of power semiconductor converters and modern trends in their application in electric drives and	c locomotives, as Z,ZK ms with modern se lamentals of comr es. A rotating mag work. Torque, stab Z,ZK ompilation of nonl Z,ZK properties and ch Z,ZK rters. It also sumr other applications Z,ZK	well as th 5 miconduc nutation. T netic field ility, overlo 5 inear mod 5 of feedba 5 aracteristi 5 narizes th 5.
purposes and the normalized statement of the course is focused evices and their protocolor transformer efficient aduction machine, states and their protocolor machine, states and the course deals with the course deals with the course deals with the course is an intra- BE1M14REP   The course is an intra- BE1M14SSE   the aim of the course focuses basics of the course focuses basics of the course focuses basics of the aim of the course focus the aim of	necessary technical documentation. Students learn the basics of electric traction drives for trams in public transport systems, electric systems of hybrid cars and electric vehicles. 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 tection circuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. Fund ney, voltage drop. Transients - switch to the network, a short circuit. Mathematical model of synchronous and asynchronous machine tarting and speed control. Influence of harmonic magnetic field. Single-phase induction motor. Work synchronous machine on a netw capacity. Modeling of Dynamical Systems h combining knowledge of the dynamics of rigid bodies, fluid mechanics, aerodynamics, gas dynamics and thermodynamics in the co- of dynamic systems. Seminars are focused on assembling of numeric models in Matlab / Simulink. Control and Regulation of Electric Drives roduction to the problems of the theory of continuous control of electrical drives and power converters. During the semester are disc control, transmission system, determining the stability of the system, including controller types and methods of tuning. Machinery and Structures of Power Plants e is to acquaint students with forms of energy transformation in power plants, describing the function of power facilities, their structure, Theory and Application of Power Converters s on typical applications of power semiconductor converters on their sizing, switching and protection of power semiconductor converter f modulation and control strategies of power semiconductor converters and modern trends in their application in electric drives and Electrical Light	c locomotives, as Z,ZK ms with modern se lamentals of comr es. A rotating mag work. Torque, stab Z,ZK ompilation of nonl Z,ZK properties and ch Z,ZK rters. It also sumr other applications Z,ZK resolving lighting	well as th 5 miconduc nutation. T netic field ility, overlo 5 inear mod 5 of feedba 5 aracteristi 5 narizes th 5.
purposes and the normalized statement of the course is focused evices and their protostransformer efficient iduction machine, statement of the course deals with the course deals with the course deals with the course is an intro- BE1M14REP in the course is an intro- BE1M14SSE in the course is an intro- BE1M14SSE in the course focuses basics of BE1M15ELS in the course is an intro- BE1M15ELS in the course is an intro- BE1M15ELS in the course is an intro- BE1M15ELS in the course indoces in the course is an intro- BE1M15ELS in the course is an intro-	ecessary technical documentation. Students learn the basics of electric traction drives for trams in public transport systems, electric systems of hybrid cars and electric vehicles. Electric Machinery and Apparatus do on contact and solid-state switching devices in LV networks. Basic topologies AC switches and stress of their components, system bection circuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. Fund ncy, voltage drop. Transients - switch to the network, a short circuit. Mathematical model of synchronous and asynchronous machine tarting and speed control. Influence of harmonic magnetic field. Single-phase induction motor. Work synchronous machine on a netw capacity. Modeling of Dynamical Systems h combining knowledge of the dynamics of rigid bodies, fluid mechanics, aerodynamics, gas dynamics and thermodynamics in the co of dynamic systems. Seminars are focused on assembling of numeric models in Mattab / Simulink. Control and Regulation of Electric Drives roduction to the problems of the theory of continuous control of electrical drives and power converters. During the semester are disc control, transmission system, determining the stability of the system, including controller types and methods of tuning. Machinery and Structures of Power Plants e is to acquaint students with forms of energy transformation in power plants, describing the function of power facilities, their structure, Theory and Application of Power Converters s on typical applications of power semiconductor converters on their sizing, switching and protection of power semiconductor convert f modulation and control strategies of power semiconductor converters and modern trends in their application in electric drives and Electrical Light se is to make students acquainted with most frequent applications of optical radiation and with theoretical and practical principles of oor and outdoor areas, respecting necessary visual performance with emphasis on energy efficiency	c locomotives, as Z,ZK amentals of comr es. A rotating mag work. Torque, stab Z,ZK ompilation of nonl Z,ZK properties and ch Z,ZK rters. It also sumr other applications Z,ZK resolving lighting th and safety. Z,ZK	well as the second seco
purposes and the normalized statement of the course is focused evices and their protocome of transformer efficient iduction machine, statement of the course deals with the course is an intro- BE1M14MDS1 he course is an intro- BE1M14REP he aim of the course of the course focuses basics of BE1M14TVM The course focuses basics of BE1M15ELS he aim of the course indoces because indoces because the course of the course focuses basics of BE1M15ELS he aim of the course indoces because basics of BE1M15IAP he aim of the course indoces because basics of BE1M15IAP he aim of the course indoces because basics of BE1M15IAP he aim of the course indoces because basics of BE1M15IAP he aim of the course indoces because basics of BE1M15IAP he aim of the course indoces basics of BE1M15IAP he aim of the course indoces basics of BE1M15IAP he aim of the course indoces basics of BE1M15IAP he aim of the course indoces basics of BE1M15IAP he aim of the course indoces basics of BE1M15IAP he aim of the course indoces basics of BE1M15IAP he aim of the course indoces basics of BE1M15IAP he aim of the course indoces basics of BE1M15IAP he aim of the course indoces basics of BE1M15IAP he aim of the course indoces basics of BE1M15IAP he aim of the course indoces basics of BE1M15IAP he aim of the course indoces basics of BE1M15IAP he aim of the course indoces basics of BE1M15IAP he aim of the course indoces basics of BE1M15IAP he aim of the course indoces basics of BE1M15IAP he aim of the course indoces basics and the course basics and the cour	Pecessary technical documentation. Students learn the basics of electric traction drives for trams in public transport systems, electris systems of hybrid cars and electric vehicles. 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 tection circuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. Fund necy, voltage drop. Transients - switch to the network, a short circuit. Mathematical model of synchronous and asynchronous machine tarting and speed control. Influence of harmonic magnetic field. Single-phase induction motor. Work synchronous machine on a netw capacity. Modeling of Dynamical Systems h combining knowledge of the dynamics of rigid bodies, fluid mechanics, aerodynamics, gas dynamics and thermodynamics in the co of dynamic systems. Seminars are focused on assembling of numeric models in Matlab / Simulink. Control and Regulation of Electric Drives roduction to the problems of the theory of continuous control of electrical drives and power converters. During the semester are disc control, transmission system, determining the stability of the system, including controller types and methods of tuning. Machinery and Structures of Power Plants e is to acquaint students with forms of energy transformation in power plants, describing the function of power semiconductor conver f modulation and control strategies of power semiconductor converters on their sizing, switching and protection of power semiconductor converters on their sizing, switching and protection of power semiconductor conver f modulation and control strategies of power semiconductor converters and modern trends in their application in electric drives and felectrical Light se is to make students acquainted with most frequent applications of optical radiation and with theoretical and practical principles of oor and outdoor areas, respecting necessary visual performanc	c locomotives, as Z,ZK ans with modern se lamentals of comr es. A rotating mag work. Torque, stab Z,ZK ompilation of nonl Z,ZK properties and ch Z,ZK resolving lighting th and safety. Z,ZK gebra systems	well as the second seco
purposes and the neritary purposes and the neritary of the course is focused evices and their protocome transformer efficient aduction machine, state in the course deals with the course deals with the course deals with the course deals with the course is an intro- BE1M14REP   The course is an intro- BE1M14SSE   the aim of the course focuses basics of BE1M14TVM   The course focuses basics of BE1M15ELS   The aim of the course index BE1M15IAP   The ablack of BE1M15PPE1   The course introduced basis introduced ba	Precessary technical documentation. Students learn the basics of electric traction drives for trams in public transport systems, electris systems of hybrid cars and electric vehicles. 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 of youtage drop. Transients - switch to the network, a short circuit. Mathematical model of synchronous and asynchronous machine tarting and speed control. Influence of harmonic magnetic field. Single-phase induction motor. Work synchronous machine on a netw capacity. Modeling of Dynamical Systems h combining knowledge of the dynamics of rigid bodies, fluid mechanics, aerodynamics, gas dynamics and thermodynamics in the co of dynamic systems. Seminars are focused on assembling of numeric models in Matlab / Simulink. Control and Regulation of Electric Drives roduction to the problems of the theory of continuous control of electrical drives and power converters. During the semester are disc control, transmission system, determining the stability of the system, including controller types and methods of tuning. Machinery and Application of Power Plants e is to acquaint students with forms of energy transformation in power plants, describing the function of power facilities, their structure, Theory and Application of Power Converters s on typical applications of power semiconductor converters on their sizing, switching and protection of power semiconductor converters on their sizing, switching and protection and application in electric drives and Electrical Light se is to get an overview of solving basic mathematical problems courring in engineering practice using computer al Elements and Operation of Electrical Power Systems atim of the course is to get an overview of solving basic mathematical problems courring in engineering practice using computer al Elements and Operation of Electrical Power Systems atim of the course is to get an overview of solving basic mathematical	c locomotives, as Z,ZK ans with modern se lamentals of com- es. A rotating mag- work. Torque, stab Z,ZK ompilation of nonlo- Z,ZK properties and ch- Z,ZK resolving lighting th and safety. Z,ZK gebra systems Z,ZK hents, steady stat	well as th 5 miconduc nutation. T netic field ility, overlo 5 inear mod 5 of feedba 5 aracteristi 5 narizes th 3. 5 systems 5 systems 5
purposes and the normalized statement of the course is focused evices and their protocological statement of the course of the course of the course deals with the course is an intro- BE1M14MDS1 he course is an intro- BE1M14REP he aim of the course of the course is an intro- BE1M14SSE he aim of the course basics of BE1M15ELS has a statement of the course index basics of BE1M15FLS he aim of the course index basics of BE1M15PPE1 The course introduce and failute the course introduce the course introduce and failute the course introduce the course introduce and failute the course introduce the course the course introduce the course introduce the course the course introduce the course introduce the course the co	necessary technical documentation. Students learn the basics of electric traction drives for trams in public transport systems, electri- systems of hybrid cars and electric vehicles. Electric Machinery and Apparatus do on contact and solid-state switching devices in LV networks. Basic topologies AC switches and stress of their components, system tection circuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. Fund ney, voltage drop. Transients - switch to the network, a short circuit. Mathematical model of synchronous and asynchronous machine tarting and speed control. Influence of harmonic magnetic field. Single-phase induction motor. Work synchronous machine on a netw capacity. Modeling of Dynamical Systems h combining knowledge of the dynamics of rigid bodies, fluid mechanics, aerodynamics, gas dynamics and thermodynamics in the of of dynamic systems. Seminars are focused on assembling of numeric models in Matlab / Simulink. Control and Regulation of Electric Drives roduction to the problems of the theory of continuous control of electrical drives and power converters. During the semester are disc control, transmission system, determining the stability of the system, including controller types and methods of tuning. Machinery and Structures of Power Plants e is to acquaint students with forms of energy transformation in power plants, describing the function of power semiconductor converters on typical applications of power semiconductor converters on their sizing, switching and protectical and practical principles of oor and outdoor areas, respecting necessary visual performance with emphasis on energy efficiency solutions and aspects of healt Engineering Applications and of the course is to get an overview of solving basic mathematical problems occurring in engineering practice using computer at Electrical Light se is to make students acquainted with most frequent applications of optical radiation and with theoretical and practical principle	c locomotives, as Z,ZK ns with modern se lamentals of com- es. A rotating mag- work. Torque, stab Z,ZK ompilation of nonlo- Z,ZK properties and ch- Z,ZK properties and ch- Z,ZK properties and ch- Z,ZK resolving lighting th and safety. Z,ZK gebra systems Z,ZK nents, steady stat cs and utilization.	well as the second seco
purposes and the normalized statement of the course is focused evices and their protostransformer efficient aduction machine, states and their protostransformer efficient aduction machine, states and the course deals with the course deals with the course deals with the course deals with the course is an intro- BE1M14REP   The course is an intro- BE1M14SSE   the aim of the course focuses basics of BE1M14TVM   The course focuses basics of BE1M15ELS   The aim of the course indoce BE1M15PPE1   The course introduce and failu BE1M15PRE1   SE1M15PRE1	necessary technical documentation. Students learn the basics of electric traction drives for trams in public transport systems, electric systems of hybrid cars and electric vehicles. Electric Machinery and Apparatus di on contact and solid-state switching devices in LV networks. Basic topologies AC switches and stress of their components, system tection circuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. Fund ncy, voltage drop. Transients - switch to the network, a short circuit. Mathematical model of synchronous and asynchronous machine tarting and speed control. Influence of harmonic magnetic field. Single-phase induction motor. Work synchronous machine on a netw capacity. Modeling of Dynamical Systems h combining knowledge of the dynamics of rigid bodies, fluid mechanics, aerodynamics, gas dynamics and thermodynamics in the co of dynamic systems. Seminars are focused on assembling of numeric models in Matlab / Simulink. Control and Regulation of Electric Drives roduction to the problems of the theory of continuous control of electrical drives and power converters. During the semester are disc control, transmission system, determining the stability of the system, including controller types and methods of tuning. Machinery and Structures of Power Plants e is to acquaint students with forms of energy transformation in power plants, describing the function of power facilities, their structure, Theory and Applications of power semiconductor converters and modern trends in their application in electric drives and Electrical Light are is to get an overview of solving basic mathematical problems occurring in engineering practice using computer all Elements and Operation of Electrical Power Systems es basic technical principles of diencrision and distribution. There are explained parameters of power systems key elem ure phenomena, main principles of disving basic mathematical problems occurring and electrical and anchines characteristic Transmiss	c locomotives, as Z,ZK ns with modern se lamentals of commes. A rotating mag work. Torque, stab Z,ZK ompilation of nonloged Z,ZK properties and ch Z,ZK properties and ch Z,ZK other applications Z,ZK resolving lighting th and safety. Z,ZK gebra systems Z,ZK nents, steady stat cs and utilization. Z,ZK	well as the second seco
purposes and the neri BE1M14ESP The course is focused devices and their profi- transformer efficien induction machine, st BE1M14MDS1 The course deals with BE1M14REP The course is an intra BE1M14SSE The aim of the course basics of BE1M15ELS The aim of the course indo BE1M15PPE1 The course introduce and failu BE1M15PRE1 The course introduces	necessary technical documentation. Students learn the basics of electric traction drives for trams in public transport systems, electri systems of hybrid cars and electric vehicles. Electric Machinery and Apparatus do on contact and solid-state switching devices in LV networks. Basic topologies AC switches and stress of their components, system tection circuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. Fund ncy, voltage drop. Transients - switch to the network, a short circuit. Mathematical model of synchronous and asynchronous machine tarting and speed control. Influence of harmonic magnetic field. Single-phase induction motor. Work synchronous machine on a netw capacity. Modeling of Dynamical Systems h combining knowledge of the dynamics of rigid bodies, fluid mechanics, aerodynamics, gas dynamics and thermodynamics in the co of dynamic systems. Seminars are focused on assembling of numeric models in Matlab / Simulink. Control and Regulation of Electric Drives reduction to the problems of the theory of continuous control of electrical drives and power converters. During the semester are disc control, transmission system, determining the stability of the system, including controller types and methods of tuning. Machinery and Structures of Power Plants is to acquaint students with forms of energy transformation in power plants, describing the function of power semiconductor conver rodulation and control strategies of power semiconductor converters and modern trends in their application in electric drives and Electrical Light ae is to make students acquainted with most frequent applications of optical radiation and with theoretical and practical principles of and outdoor areas, respecting necessary visual performance with emphasis on energy efficiency solutions and aspects of healt Elegenents and Operation of Electrical Power Systems ses basic technical principles of electricity transmission and distribution. There are e	c locomotives, as Z,ZK ns with modern se lamentals of commes. A rotating mag work. Torque, stab Z,ZK ompilation of nonloged Z,ZK properties and ch Z,ZK properties and ch Z,ZK other applications Z,ZK resolving lighting th and safety. Z,ZK gebra systems Z,ZK nents, steady stat cs and utilization. Z,ZK ates and possibility	well as th 5 miconduc nutation. T gnetic field ility, overlo 5 inear mod 5 of feedba 5 of feedba 5 aracteristi 5 narizes th 5 s 5 systems 5 5 5 systems 5 5 5 5 so f a feedba 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
purposes and the normalized statement of the course is focused levices and their profit transformer efficien induction machine, state in the course deals with the course deals with the course deals with the course is an introverse is an introverse statement of the course is a statement of the course is a statement of the course introduce and failutes and failut	necessary technical documentation. Students learn the basics of electric traction drives for trans in public transport systems, electric systems of hybrid cars and electric vehicles. Electric Machinery and Apparatus do no contact and solid-state switching devices in LV networks. Basic topologies AC switches and stress of their components, system tection circuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. Fund noy, voltage drop. Transients - switch to the network, a short circuit. Mathematical model of synchronous and asynchronous machine tarting and speed control. Influence of harmonic magnetic field. Single-phase induction motor. Work synchronous machine on a netw capacity. Modeling of Dynamical Systems h combining knowledge of the dynamics of rigid bodies, fluid mechanics, aerodynamics, gas dynamics and thermodynamics in the or of dynamic systems. Seminars are focused on assembling of numeric models in Mattab / Simulink. Control and Regulation of Electric Drives roduction to the problems of the theory of continuous control of electrical drives and power converters. During the semester are disc control, transmission system, determining the stability of the system, including controller types and methods of tuning. Machinery and Application of Power Converters s on typical applications of power semiconductor converters on their sizing, switching and protection of power semiconductor converters on typical applications of power semiconductor converters on their sizing, switching and protection of power semiconductor converters is to machine such the most frequent applications of optical radiation and with theoretical and practical principles of oor and outdoor areas, respecting necessary visual performance with emphasis on energy efficiency solutions and aspects of healt Engineering Applications aim of the course is to get an overview of solving basic mathematical problems occurring in engineering practice using computer all	c locomotives, as Z,ZK ns with modern se lamentals of comr es. A rotating mag work. Torque, stab Z,ZK ompilation of nonl Z,ZK cussed the basics Z,ZK properties and ch Z,ZK resolving lighting th and safety. Z,ZK gebra systems Z,ZK nents, steady stat cs and utilization. Z,ZK ates and possibiliti Z,ZK	well as the second seco
purposes and the normalized statement of the course is focused evices and their profit transformer efficien induction machine, state in the course deals with the course deals with the course deals with the course is an intro- BE1M14MDS1 in the course is an intro- BE1M14REP in the course is an intro- BE1M14SSE in the course is an intro- BE1M14SSE in the course is an intro- BE1M14SSE in the course is a state of the course is a state of the course is a state of the course introduced is the course introduced and failut a state of the course introduced and failut a state of the course introduced is the course introduced and failut a state of the course introduced and the course introduced and failut a state of the course introduced and the course	ecessary technical documentation. Students learn the basics of electric traction drives for trams in public transport systems, electri systems of hybrid cars and electric vehicles. Electric Machinery and Apparatus and on contact and solid-state switching devices. The course also deals with the general theory of electrical machines. Magnetic field. Fund nor, voltage drop. Transients - switch to the network, a short circuit. Mathematical model of synchronous and asynchronous machine taction circuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. Single-phase induction motor. Work synchronous machine tarting and speed control. Influence of harmonic magnetic field. Single-phase induction motor. Work synchronous machine on a netw capacity. Modeling of Dynamical Systems h combining knowledge of the dynamics of rigid bodies, fluid mechanics, aerodynamics, gas dynamics and thermodynamics in the or of dynamic systems. Seminars are focused on assembling of numeric models in Matlab / Simulink. Control and Regulation of Electric Drives roduction to the problems of the theory of continuous control of electrical drives and power converters. During the semester are disc control, transmission system, determining the stability of the system, including controller types and methods of tuning. Machinery and Application of Power Plants e is to acquaint students with forms of energy transformation in power plants, describing the function of power semiconductor converters modulation and control strategies of power semiconductor converters on their sizing, switching and protection of power semiconductor conver f modulation and control strategies of power semiconductor converters and modern trends in their application and aspects of heat Elegneents and Operation of Electrical Power Systems and of the course is to get an overview of solving basic mathematical problems occurring in engineering practice using computer al Elements and Operation of Electrical Power Systems	c locomotives, as Z,ZK ns with modern se lamentals of comr es. A rotating mag work. Torque, stab Z,ZK ompilation of nonl Z,ZK properties and ch Z,ZK properties and ch Z,ZK resolving lighting th and safety. Z,ZK gebra systems Z,ZK nents, steady stat cs and utilization. Z,ZK ates and possibilit Z,ZK of high voltage g	well as th
purposes and the normalized statement of the course is focused evices and their profit transformer efficien induction machine, states and their profit transformer efficien induction machine, states and their profit transformer efficien induction machine, states and the course deals with the course deals with the course is an intro- BE1M14MDS1 in the course is an intro- BE1M14REP in the course is an intro- BE1M14SSE in the course is an intro- BE1M14SSE in the course is a state of the course is a state of the course intro- BE1M15ELS in the aim of the course introduce and failu BE1M15PPE1 in the course introduce and failu BE1M15PRE1 in the course introduce and failu BE1M15TVN in the course contain measurement techni	ecessary technical documentation. Students learn the basics of electric traction drives for trams in public transport systems, electris systems of hybrid cars and electric vehicles. Electric Machinery and Apparatus and on contact and solid-state switching devices in LV networks. Basic topologies AC switches and stress of their components, system tection circuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. Fund noy, voltage drop. Transients - switch to the network, a short circuit. Mathematical model of synchronous and asynchronous machine tarting and speed control. Influence of harmonic magnetic field. Single-phase induction motor. Work synchronous machine on a netw capacity. Modeling of Dynamical Systems h combining knowledge of the dynamics of rigid bodies, fluid mechanics, aerodynamics, gas dynamics and thermodynamics in the co of dynamic systems. Seminars are focused on assembling of numeric models in Mattab / Simulink. Control and Regulation of Electric Drives roduction to the problems of the theory of continuous control of electrical drives and power converters. During the semester are disc control, transmission system, determining the stability of the system, including controller types and methods of tuning. Machinery and Structures of Power Plants a is to acquaint students with forms of energy transformation in power plants, describing the function of power facilities, their structure, Theory and Application of Power Converters on typical applications of power semiconductor converters and modern trends in their application in electric drives and Electrical Light Engineering Applications aim of the course is to get an overview of solving basic mathematical problems occurring in engineering practice using computer al Elements and Operation of Electrical Power Systems es basic technical principles of dimensioning and protecting, power quality and its control and electrical machines characteristic in these states. The course also deals w	c locomotives, as Z,ZK ns with modern se lamentals of commes. A rotating mag work. Torque, stab Z,ZK ompilation of nonloced Z,ZK properties and che Z,ZK properties and che Z,ZK other applications Z,ZK resolving lighting th and safety. Z,ZK gebra systems Z,ZK nents, steady stat cs and utilization. Z,ZK ates and possibilitient Z,ZK of high voltage g ation. The practic	well as the second seco
purposes and the number of the course is focused         BE1M14ESP         The course is focused         devices and their production machine, st         BE1M14MDS1         The course deals with         BE1M14REP         The course deals with         BE1M14REP         The course deals with         BE1M14REP         The course is an intro         BE1M14SE         The course is an intro         BE1M14SE         The course focuses         basics of         BE1M15ELS         The aim of the course         indo         BE1M15IAP         The course introduce         and failu         BE1M15PRE1         The course introduce         BE1M15PRE1         The course contain         measurement technic         BE1M16EKE1	ecessary technical documentation. Students learn the basics of electric traction drives for trams in public transport systems, electri- systems of hybrid cars and electric vehicles. Electric Machinery and Apparatus do n contact and solid-state switching devices in LV networks. Basic topologies AC switches and stress of their components, system tection circuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. Fund new, voltage drop. Transients - switch to the network, a short circuit. Mathematical model of synchronous and asynchronous machine tarting and speed control. Influence of harmonic magnetic field. Single-phase induction motor. Work synchronous machine on a netw capacity. Modeling of Dynamical Systems h combining knowledge of the dynamics of rigid bodies, full mechanics, aerodynamics, gas dynamics and thermodynamics in the co of dynamic systems. Seminars are focused on assembling of numeric models in Mattab / Simulink. Control and Regulation of Electric Drives roduction to the problems of the theory of continuous control of electrical drives and power converters. During the semester are disc control, transmission system, determining the stability of the system, including controller types and methods of tuning. Machinery and Structures of Power Plants is to acquaint students with forms of energy transformation in power plants, describing the function of power facilities, their structure, Theory and Application of Power Converters s on typical applications of power semiconductor converters and modern trends in their application in electric drives and Electrical Light se is to make students acquainted with most frequent applications of pical radiation and with theoretical and practical principles of oor and outdoor areas, respecting necessary visual performance with emphasis on energy efficiency solutions and aspects of heat <u>Elements and Operation of Electrical Power Systems</u> and the course is to get an overview of solving basic mathematical	c locomotives, as Z,ZK ns with modern se lamentals of comr es. A rotating mag work. Torque, stab Z,ZK ompilation of nonl Z,ZK properties and ch Z,ZK properties and ch Z,ZK resolving lighting th and safety. Z,ZK gebra systems Z,ZK nents, steady stat cs and utilization. Z,ZK ates and possibilit Z,ZK of high voltage g ation. The practic	well as the second seco
purposes and the number of the course is focused devices and their production machine, standing of the course and their production machine, standing of the course deals with the course deals with the course deals with the course deals with the course is an introduced of the course is an introduction of the course is an introduction of the course is an introduction of the course focuses basics of the the course focuses basics of the the course introduced of the course contain measurement technic tec	ecessary technical documentation. Students learn the basics of electric traction drives for trams in public transport systems, electris systems of hybrid cars and electric vehicles. Electric Machinery and Apparatus and on contact and solid-state switching devices in LV networks. Basic topologies AC switches and stress of their components, system tection circuits, testing electrical devices. The course also deals with the general theory of electrical machines. Magnetic field. Fund noy, voltage drop. Transients - switch to the network, a short circuit. Mathematical model of synchronous and asynchronous machine tarting and speed control. Influence of harmonic magnetic field. Single-phase induction motor. Work synchronous machine on a netw capacity. Modeling of Dynamical Systems h combining knowledge of the dynamics of rigid bodies, fluid mechanics, aerodynamics, gas dynamics and thermodynamics in the co of dynamic systems. Seminars are focused on assembling of numeric models in Mattab / Simulink. Control and Regulation of Electric Drives roduction to the problems of the theory of continuous control of electrical drives and power converters. During the semester are disc control, transmission system, determining the stability of the system, including controller types and methods of tuning. Machinery and Structures of Power Plants a is to acquaint students with forms of energy transformation in power plants, describing the function of power facilities, their structure, Theory and Application of Power Converters on typical applications of power semiconductor converters and modern trends in their application in electric drives and Electrical Light Engineering Applications aim of the course is to get an overview of solving basic mathematical problems occurring in engineering practice using computer al Elements and Operation of Electrical Power Systems es basic technical principles of dimensioning and protecting, power quality and its control and electrical machines characteristic in these states. The course also deals w	c locomotives, as Z,ZK ns with modern se lamentals of comr es. A rotating mag work. Torque, stab Z,ZK ompilation of nonl Z,ZK properties and ch Z,ZK properties and ch Z,ZK resolving lighting th and safety. Z,ZK gebra systems Z,ZK nents, steady stat cs and utilization. Z,ZK ates and possibilit Z,ZK of high voltage g ation. The practic Z,ZK	well as the second seco

BE1M16EUE1	
------------	--

### Economy of Energy Lise

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 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 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.					

For updated information see <u>http://bilakniha.cvut.cz/en/f3.html</u> Generated: day 2024-07-27, time 05:26.