## Study plan

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

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: Bachelor full-time

Required credits: 178
Elective courses credits: 2
Sum of credits in the plan: 180

Note on the plan:

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 133

The role of the block: P

Code of the group: 2018\_BEEMBAP Name of the group: Bachelor Project

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 1 course

Credits in the group: 15 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
BBAP15	Bachelor thesis	Z	15	15s	L,Z	Р

Characteristics of the courses of this group of Study Plan: Code=2018\_BEEMBAP Name=Bachelor Project

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BBAP15	Bachelor thesis	Z	15

Code of the group: 2018 BEEMBBE

Name of the group: Safety of the bachelor's studies

Requirement credits in the group:

Requirement courses in the group: In this group you have to complete at least 2 courses

Credits in the group: 0 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
BEZB	Safety in Electrical Engineering for a Bachelor's Degree Ivana Nová, Radek Havlí ek, Vladimír K la Radek Havlí ek Vladimír K la (Gar.)	Z	0	2BP+2BC	Z,L	Р
BEZZ	Basic Health and Occupational Safety Regulations Ivana Nová, Radek Havlí ek, Vladimír K la Radek Havlí ek Vladimír K la (Gar)	Z	0	2BP+2BC	Z	Р

Characteristics of the courses of this group of Study Plan: Code=2018\_BEEMBBE Name=Safety of the bachelor's studies

BEZB	Safety in Electrical Engineering for a Bachelor´s Degree	Z	0
The purpose of the safe	ty course is to give the students basic knowledge of electrical equipment and installation as to avoid danger arising from oper	ation of it. This inti	roductory course
contains fundamentals	purpose of the safety course is to give the students basic knowledge of electrical equipment and installation as to avoid danger arising from ains fundamentals of Safety Electrical Engineering. In this way the students receive qualification of instructed person that enables them to		
BEZZ	Basic Health and Occupational Safety Regulations	Z	0

The guidelines were worked out based on The Training Scheme for Health and Occupational Safety designed for employees and students of the Czech Technical University in Prague, which was provided by the Rector's Office of the CTU. Safety is considered one of the basic duties of all employees and students. The knowledge of Health and Occupational Safety regulations forms an integral and permanent part of qualification requirements. This program is obligatory.

Code of the group: 2018\_BEEMP

Name of the group: Compulsory subjects of the programme

Requirement credits in the group: In this group you have to gain 118 credits

Requirement courses in the group: In this group you have to complete 24 courses

Credits in the group: 118

Note on the group:

Note on the gro	<u> </u>					
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
B0B01DRN	Differencial Equations and Numerical Analysis Petr Habala, Jakub Rondoš, Jakub Stan k, Daniel Gromada, Josef Dvo ák Petr Habala Petr Habala (Gar.)	Z,ZK	4	2P+2C	L	Р
B1B38EMA	Electrical Measurements Jakub Svatoš Jakub Svatoš (Gar.)	KZ	5	2P+2L	L	Р
B1B31EOS	Electric circuits Martin Pokorný, Michal Šimek Martin Pokorný Martin Pokorný (Gar.)	Z,ZK	6	3P+2S	Z	Р
B1B15EN11	Power Engineering 1 Ladislav Musil, Ivo Doležel	Z,ZK	5	3P+2S	L	Р
B1B15EN2	Power Engineering 2 Ivo Doležel, Zden k Müller	Z,ZK	5	2P+2L	Z	Р
B1B17EMP	Electromagnetic Field Vít zslav Pankrác Vít zslav Pankrác (Gar.)	Z,ZK	5	2P+2C	Z	Р
B1B34EPS	Elektronics for Heavy-current engeneering Vladimír Janí ek, Adam Bou a, Jan Novák, Tomáš Teplý, Tomáš Martan Vladimír Janí ek Vladimír Janí ek (Gar.)	KZ	4	2P+2L	Z	Р
B1B02FY1	Physics 1 Petr Koní ek Petr Koní ek Petr Koní ek (Gar.)	Z,ZK	8	4P+1L+2C	L	Р
B1B02FY2	Physics 2 Petr Koní ek, Marek Brothánek, Vojt ch Jandák Petr Koní ek Petr Koní ek (Gar.)	Z,ZK	7	3P+1L+2C	Z	Р
B0B01KANA	Complex Analysis Zden k Mihula, Hana Tur inová Zden k Mihula Zden k Mihula (Gar.)	Z,ZK	4	2P+2S	Z	Р
B0B01LAGA	Linear Algebra Jakub Rondoš, Daniel Gromada, Josef Dvo ák, Ji í Velebil, Martin Bohata, Alena Gollová, Natalie Žukovec, Mat j Dostál <b>Ji í Velebil</b> Ji í Velebil (Gar.)	Z,ZK	7	4P+2S	Z	Р
B0B01MA1A	Mathematical Analysis 1 Josef Dvo ák, Martin Bohata, Veronika Sobotíková, Karel Pospíšil Veronika Sobotíková Veronika Sobotíková (Gar.)	Z,ZK	6	4P+2S	Z	Р
B0B01MA2A	Mathematical Analysis 2 Veronika Sobotíková, Jaroslav Tišer, Martin K epela, Miroslav Korbelá Jaroslav Tišer Jaroslav Tišer (Gar.)	Z,ZK	6	4P+2S	L	Р
B1B13MVE1	Materials for Power Electrical Engineering Jan Zemen, Pavel Mach, Josef Sedlá ek, Karel Dušek, Ivana Beshajová Pelikánová Karel Dušek Pavel Mach (Gar.)	Z,ZK	4	2P+2L	Z	Р
B0B99PRPA	Procedural Programming Stanislav Vítek Stanislav Vítek (Gar.)	KZ	4	2P+2C	Z	Р
B1BPROJ4	Bachelor project  Zden k Müller, Ivana Beshajová Pelikánová, Jan Mikeš, Jan Kyncl, Jan Bauer,  Karel Künzel, Stanislav Bou ek, Ji í Vaší ek, Miroslav Vítek, Jan Bauer  Jan Bauer (Gar.)	Z	4	4s	Z,L	Р
B1B13PPS	Industrial computer systems  Karel Künzel Karel Künzel Karel Künzel (Gar.)	Z,ZK	4	2P+2L	L	Р
B1B13TEP	Electrical engineering technological processes Pavel Mach, Karel Dušek, Petr Veselý, Jan Kuba, Radek Procházka Karel Dušek Pavel Mach (Gar.)	Z,ZK	4	3P+2L	L	Р
B1B15VYA	Computational Applications Jan Kyncl Jan Kyncl (Gar.)	KZ	4	2P+2C	L	Р
B1B13VVZ1	Manufacturing of Power Devices Radek Procházka, Ji í Hájek, Petr Gric Ji í Hájek Ji í Hájek (Gar.)	Z,ZK	4	2P+2L	Z	Р
B1B14ZPO	Fundametals of Electric Drives Pavel Kobrle Pavel Kobrle	Z,ZK	5	2P+2L	Z	Р
B1B14ZSP	Electric Machines and Apparatuses Basics Pavel Kobrle, Pavel Mindl Pavel Kobrle Pavel Kobrle (Gar.)	Z,ZK	5	3P+2L	L	Р
B1B14ZEL1	Fundamentals of Electrotechnical Engineering Ivana Nová, Vít Hlinovský, Ji í Beranovský Ivana Nová	KZ	4	2P+2C	Z	Р
B1B14ZVE	Power Electronics Jan Bauer, Ji í Lettl Ji í Lettl (Gar.)	Z,ZK	4	2P+2L	Z	Р

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

B0B01DRN Differencial Equations and Numerical Analysis

Z,ZK

4

This course introduces students to the classical theory of ordinary differential equations (separable and linear ODEs) and also to bsics of numerical methods (errors in calculations and stability, numerical solutions of algebraic and differential equations and their systems). The course takes advantage of the synnergy between theoretical and practical point of view.

The subject is boused to fundamentals of measuremental and instrumentation. Based on the principles of the methods of electrical quantities measurement application, and accuracy estimation. Fundamentals of magnetic measurement application, and accuracy estimation. Fundamentals of magnetic measurement application, and accuracy estimation. Fundamentals of magnetic measurement application are provided in the provided of the correct application and accuracy estimation. Fundamental methods of electrical cross the course.  BIBBISCOS [Electric Crossital intervals and accuracy of the provided of the provide				
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settration. Fundamentals of magnetic measurements does the course.  BIBSIECS   Electric circuits in the place of controls of transported methods of extract places in the places of controls of the control of the contr	· · · · · · · · · · · · · · · · · · ·			
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BB02FY2   Physics 2 The course Physics 2 is closely involved with the course Physics 1. Within the framework of this course the students will first of all learn foundations of thermodynamics. Following topic ribe theory of waves: will give to the students basic insight into the properties of waves and will help to the students to understand that the presented description of the waves has a understand that the presented description of the waves has an understand that the presented description of the waves has an understand that the presented description of the waves has an understand that the presented description of the waves has an understand that the presented description of the waves has an understand that the presented description of the waves has an unclear physics will complete the student's general education in physics. The knowledge gained in this course will help to the students in study of such modern areas as robotics, computer valors. The measurant technique and will allow them to understand the principles of rovel technologies and functioning of new electronic devices.  BOBO1KANA   Complex Analysis   Z,ZK   4  The course serves introduction to the fundamentals of complex analysis and its applications, particularly to solving differential and difference equations.  BOBO1LAGA   Linear Algebra   Z,ZK   7  The course covers introduction to the difference equations. The course is deviced to vector spaces and linear transform (such as linear transformation, elegienear of vectors, bases, coordinates of vectors, tec.). The next part of the course is deviced to natrix theory (determinants, inverse matrix, matrices of linear transformation, elegienear of vectors, bases, coordinates of vectors, etc.). The next part of the course is deviced to matrix theory (determinants, inverse matrix, matrices of linear transformation, elegienear of vectors, bases, coordinates of vectors, etc.). The next part of the course is deviced to matrix theory (determinants, inverse matrix, matrices of linear transformation, elegiene			rse is required for	the study of the
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-the theory of waves - will give to the students basic insight into the properties of waves and will help to the students to understand that the presented description of the waves has an universal character in spite of the waves have such as a country or optical waves are the subjects of the following section, Quantium mechanics and universal character in spite of the waves has a diversal physics will complete the student's general education in physics. The knowledge gained in this course will help to the students in study of such modern areas as robotics, computer vision, measuring technique and will allow them to understand the principles of novel technologies and functioning of new electronic devices.  BOBO1KANA Complex Analysis  The course is an introduction to the understand of the course of the principles of novel technologies and functioning of new electronic devices.  BOBO1LAGA Linear Algebra  The course overs introductory topics of linear algebra. It begins with fundamental concepts related to vector spaces and linear transform (such as linear dependence of vectors, bases, coordinates of vectors, etc.). The next part of the course is devoted to matrix theory (determinants, inverse matrix, matrices of linear transformation, eigenvalues and eigenvectors). Alpoinidations includes softwing systems of linear equations, geometry in three-dimensional space (including dot and cross products), and the singular value decomposition of a matrix.  BOBO1MA1A Mathematical Analysis 1  This is an introductory ocurse to differential and integral calculus of functions of one real variable.  BOBO1MA2A Mathematical Indignals (accounts of functions of one real variable).  BOBO1MA2A Mathematical Analysis 2  A tirst a physical description of basic properties and basic types of materials for electrical engineering is carried out. Types of conductors, supernoutuotrus, insulators, magnetic materials for the anti-function of basic properties, etchnological programming  KZ 4  A tirst a physical description of basic properties and		, i	· · · · · · · · · · · · · · · · · · ·	Following topic
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B1BPROJ4 Bachelor project Z 4 B1B13PPS Industrial computer systems Z,ZK 4 The subject is focused on basic knowledges about computer control systems used in electrotechnic engineering and energetics. Students works with hardware for data acquisition and data processing, software tools and application examples. There are presented elementary digital circuits, the representation of numbers and their processing in microcomputer and fundamental block of microprocessor and microcomputer. The single chip microcomputer, embedded application, industrial PC and design to industrial condition are presented.  B1B13TEP Electrical engineering technological processes  Electrical engineering technological processes  Technologies used in electronics, laser, and other beam technologies and IC packaging will be characterized. There will also be discussed fundamentals of winding, drying and impregnation processes. The subject is also the basis for producing single-crystal Si. Technology using plasma technology, packaging, and basic assembly technologies are also presented.  B1B15VYA Computational Applications  KZ 4  B1B13VVZ1 Manufacturing of Power Devices  The topic of the subject is focused on manufacturing of power electrical machines and devices from construction and technological point of wiev. Main part of the subject is devoted to transformers and rotating machines, namely their magnetic circuits and windings. Second half of the subject is dedicated to manufacturing of power semiconductive devices and converters including diagnostics, reliable operation. Last part of lectures deals with layouts of manufactirung, lean management and planning of manufacturing.  B1B14ZPO Fundametals of Electric Drives  The course provides the basic terms and knowledge in electric drives and in the issues related to this discipline as well. The lectures are focused on the basic of electric drives logic control, continuous control and also discrete control, and on the characteristics of used controllers in practice. Further, the basic control st			K7	
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B1B14ZEL1 | Fundamentals of Electrotechnical Engineering

ΚZ

4

The course extends necessary knowledge of creating technical documentation, including oral and written presentation of technical information. The second half of the semester is focused on explaining and practicing the basic parts of electrical engineering, so that the students' initial knowledge is increased to the level needed in the following semesters.

B1B14ZVE | Power Electronics

Z,ZK

K 4

The course focuses on the basic types of power semiconductor converters, which are used to change the parameters of electricity. Students are introduced to the basic principles, properties and applications of power electronic converters, their advantages, disadvantages, and fuse sizing.

Code of the group: 2015\_BZAJ

Name of the group: Exam from the english language

Requirement credits in the group:

Requirement courses in the group: In this group you have to complete 2 courses

Credits in the group: 0 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
B0B04B1K	English language B1 - classified assessment Markéta Havlí ková, Pavla Péterová, Erik Peter Stadnik, Michael Ynsua, Dana Saláková, Petra Juna Jennings Petra Juna Jennings (Gar.)	KZ	0	0C	Z,L	Р
B0B04B2Z	English language B2 - exam  Markéta Havlí ková, Michael Ynsua, Dana Saláková, Petra Juna Jennings  Petra Juna Jennings Petra Juna Jennings (Gar.)	Z,ZK	0	0C	Z,L	Р

Characteristics of the courses of this group of Study Plan: Code=2015\_BZAJ Name=Exam from the english language

	<u> </u>	3	
B0B04B1K	English language B1 - classified assessment	KZ	0
verifying of the studen	t's skills of B1 level		
B0B04B2Z	English language B2 - exam	7.7K	0

I) The B2 English Exam is a compulsory subject for all Faculty of Electrical Engineering students at the Czech Technical University. According to the Study and Examination Rules and Regulations for Students at CTU (Part III, Article 4), a compulsory subject is one whose completion is a necessary condition in order to successfully complete the study programme. In addition, this requires the passing of an examination evaluated on the scale A, B, C, D, or E (SERR Part III, Article 6). II) According to the Common European Framework of Reference for Languages (CEFR), an international standard for describing language ability, the definition of an English language learner who has achieved the B2 (Upper-Intermediate) level is one who can understand the main ideas of complex text on both concrete and abstract topics, including technical discussions in his/her field of specialisation. Can interact with a degree of fluency and spontaneity that makes regular interaction with native speakers quite possible without strain for either party. Can produce clear, detailed text on a wide range of subjects and explain a viewpoint on a topical issue giving the advantages and disadvantages of various options. III) Students who have successfully passed an approved international exam within the past five years may present their certificate to the Department of Languages, Faculty of Electrical Engineering. Upon approval, students are then exempt from both the Written Test and the Oral Part. For a list of approved international exams go the department website: http://jazyky.fel.cvut.cz/

Name of the block: Povinné p edm ty zam ení

Minimal number of credits of the block: 36

The role of the block: PZ

Code of the group: 2018\_BEEMPS2

Name of the group: Compulsory subjects of the branch

Requirement credits in the group: In this group you have to gain 36 credits

Requirement courses in the group: In this group you have to complete 7 courses

Credits in the group: 36

Note on the group:

Specializace - elektrotechnika a management

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
B1B16MME	Macro and Microekonomics Miroslav Vítek, Josef ernohous, Helena Fialová, Lubomír Lízal, Jan Jandera, Blanka Ku erková Helena Fialová Lubomír Lízal (Gar.)	Z,ZK	5	2P+2S	Z	PZ
B1B01MEK	Mathematics for Economy  Jakub Stan k, Miroslav Korbelá , Kate ina Helisová Kate ina Helisová (Gar.)	Z,ZK	5	3P+2S	L	PZ
B1B16PPP	Business Law Jaroslav Knápek, Michal Briaský, Pavel Koš ál, Martin Dobiáš Martin Dobiáš Jaroslav Knápek (Gar.)	Z,ZK	5	2P+2C	L	PZ
B1B16UEE1	Economy of Power Industry Ji í Vaší ek, Miroslav Vítek, Jaroslav Knápek Miroslav Vítek Jaroslav Knápek (Gar.)	Z,ZK	5	2P+2C	Z	PZ
B1B13VEZ	Manufacturing of Electronic Equipment David Bušek, Jan Urbánek David Bušek David Bušek (Gar.)	Z,ZK	6	2P+2L	L	PZ

B1B16ZFM1	Basics of Financial Management Josef ernohous, Blanka Ku erková, Old ich Starý Old ich Starý Old ich Starý (Gar.)	Z,ZK	5	2P+2C	L	PZ	
	Basics of Business Economics  Josef ernohous, Blanka Ku erková, Old ich Starý Josef ernohous Old ich  Starý (Gar.)	KZ	5	2P+2C	Z	PZ	

Characteristics of	of the courses of this group of Study Plan: Code=2018_BEEMPS2 Name=Compulsory subje	cts of the bra	ınch
B1B16MME	Macro and Microekonomics	Z,ZK	5
Basic economic terms	, market, law of demand, law of supply, market equilibrium, price regulation, price and income elasticities, consumer's behavior, price and income elasticities, consumer's behavior, price and income elasticities, consumer's behavior, price regulation, price regulation, price regulation, price and income elasticities, consumer's behavior, price regulation, price regulation and price r	producer's behavio	or, cost, revenue,
profit, market failure,	nonopoly, government macroeconomic policy, gross domestic product, multipliers, money, inflation, banking system, monetary	policy, labor mark	ket, business
cycle, fiscal policy, for	eign trade policy, comparative advantage, CR and EU, Euro.		
B1B01MEK	Mathematics for Economy	Z,ZK	5
The aim is to introduc	e the basic theory of probability and statistics, familiarise students with basic terms properties and methods used in working w	vith random proces	ses, especially
with Markov chains, a	nd show applications of these mathematical tools in economics and insurance.		
B1B16PPP	Business Law	Z,ZK	5
B1B16UEE1	Economy of Power Industry	Z,ZK	5
B1B13VEZ	Manufacturing of Electronic Equipment	Z,ZK	6
(obsolete text, curren	ly valid is czech version) Mechanical and electrical design. The electric contact. Joining of conductors. Cooling of components	and equipment. P	rinted circuit
boards fabrication. So	ldering in electronics. Electromagnetic compatibility of electronic equipment. Protection of components and equipment sensitive	on electrostatic fi	eld. Certification,
accreditation, quality	control and quality assurance.		
B1B16ZFM1	Basics of Financial Management	Z,ZK	5
B1B16ZPU	Basics of Business Economics	KZ	5

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 9

The role of the block: PV

Code of the group: 2018\_BEEMH

Name of the group: Humanities subjects

Requirement credits in the group: In this group you have to gain at least 4 credits (at most 28)

Requirement courses in the group: In this group you have to complete at least 1 course (at most 9)

Credits in the group: 4 Note on the group.

Note on the g	roup.					
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
B0B16ET1	Ethic 1 Vladimír Sláme ka Vladimír Sláme ka Vladimír Sláme ka (Gar.)	KZ	4	2P+2C	Z	PV
B0B16FIL	Philosophy Peter Zamarovský Peter Zamarovský (Gar.)	ZK	2	2P+0S	Z,L	PV
B0B16FI1	Philosophy 1 Peter Zamarovský Peter Zamarovský (Gar.)	KZ	4	2P+2S	Z	PV
B0B16HTE	History of technology and economic  Jan Mikeš, Marcela Efmertová Marcela Efmertová (Gar.)	ZK	2	2P+0S	Z,L	PV
B0B16HT1	History of science and technology 1  Jan Mikeš, Marcela Efmertová Marcela Efmertová (Gar.)	KZ	4	2P+2S	Z	PV
B0B16HI1	History 1 Milena Josefovi ová Milena Josefovi ová (Gar.)	KZ	4	2P+2S	Z	PV
B0B16MPS	Psychology Jan Fiala Jan Fiala (Gar.)	Z,ZK	4	2P+2S	Z,L	PV
B0B16MPL	Psychology for managers  Jan Fiala Jan Fiala (Gar.)	ZK	2	2P+0S	Z,L	PV
A003TV	Physical Education Ji i Drnek	Z	2	0+2	L,Z	PV

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

B0B16ET1	Ethic 1	KZ	4			
Aim of this subject is to	provide the students an orientation not only in general problems of ethics but above all to offer instructions for solving various	situations of hum	an life. Essential			
parts of the subject are	discussions in which students can react to lectures but also to actual questions coming with news and look for the communa	l answers.				
B0B16FIL	Philosophy	ZK	2			
We deal with the most in	We deal with the most important persons, schools and ideas of ancient philosophy. We are concerned especially on transdisciplinary nature of philosophy and connection of old					
philosophical thoughts v	with recent problems of science, technology, economics and politics.					
B0B16FI1	Philosophy 1	KZ	4			
We deal with the most in	mportant persons, schools and ideas of ancient philosophy. We are concerned especially on transdisciplinary nature of philo	sophy and connec	ction of old			
philosophical thoughts v	with recent problems of science, technology, economics and politics.					
B0B16HTE	History of technology and economic	ZK	2			
B0B16HT1	History of science and technology 1	KZ	4			
B0B16HI1	History 1	KZ	4			

B0B16MPS	Psychology	Z,ZK	4
B0B16MPL	Psychology for managers	ZK	2
A003TV	Physical Education	Z	2

Code of the group: 2018\_BEEMPV2

Name of the group: Compulsory subjects of the programm

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:

Specializace - Elektrotechnika a management

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
B1B16EOB	Lightning protection economy  Jan Mikeš Jan Mikeš Jan Mikeš (Gar.)	Z,ZK	5	2P+2L	L	PV
B1B13SSE1	Solar Systems and Electrochemical Sources Pavel Hrzina, Vít zslav Benda Pavel Hrzina Vít zslav Benda (Gar.)	Z,ZK	5	2P+2L	L	PV

Characteristics of the courses of this group of Study Plan: Code=2018\_BEEMPV2 Name=Compulsory subjects of the programm

B1B16EOB Lightning protection economy

The subject provides an introduction to lightning discharge physics and deals with protections against their effects. Students are familiarized with the design, testing, and implementation of protections. Risk management methods for lightning damage are discussed. The course includes an excursion to the production of lightning current arresters and a real study of the effects of lightning currents in the laboratory supported by numerical simulations.

B1B13SSE1 Solar Systems and Electrochemical Sources

Z,ZK

5

The course familiarizes students with the basic principles of electrochemical sources and photovoltaic cells and systems. At the beginning, the emphasis is on understanding the basic principle using the equivalent circuits and mathematical description. In the next section, the basic types of electrochemical sources and their technical parameters are explored separately. Similarly, students become familiar with the technology of photovoltaic cells and modules. Another chapter is devoted to the basic applications such as solar-thermal. At the end of the course, students become familiar with economical and technological implications of the combination of solar systems and electrochemical sources.

Name of the block: Elective courses Minimal number of credits of the block: 0

The role of the block: V

Code of the group: 2015\_BJKA

Name of the group: English language courses

Requirement credits in the group: Requirement courses in the group:

Credits in the group: 0 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
B0B04A21	English Language A2-1 Dana Saláková	Z		2s	Z	V
B0B04A22	English Language A2-2 Dana Saláková	Z	0	2s	L	V
B0B04B11	English Language B1-1 Petra Juna Jennings Petra Juna Jennings (Gar.)	Z	0	2C	Z	V
B0B04B12	English Language B1-2 Petra Juna Jennings Petra Juna Jennings (Gar.)	Z	0	2C	L	٧
B0B04B21	English Language B2-1 Petra Juna Jennings Petra Juna Jennings (Gar.)	Z	3	2C	Z	V
B0B04B22	English Language B2-2 Petra Juna Jennings Petra Juna Jennings (Gar.)	Z	3	2C	Z,L	V

Characteristics of the courses of this group of Study Plan: Code=2015\_BJKA Name=English language courses

B0B04A21	English Language A2-1	Z					
The course is open to students who are beginners in their second language. Course objective: Achieving competence in basic English.							
B0B04A22	B0B04A22 English Language A2-2 Z 0						
The course is open to s	tudents who are beginners in their second foreign language. The course objective is to develop and sustain their basic knowled	edge of the Engli	sh language.				
B0B04B11	English Language B1-1	Z	0				
Course objective: Broadening the basic knowledge of general English; mastering basic specialised language; focusing on text analysis and vocabulary expansion; understanding spoken							
English.							

B0B04B12 | English Language B1-2 | Z | 0 |
Course objective: Broadening the basic knowledge of general English; mastering basic specialised language; focusing on text analysis and vocabulary expansion; understanding spoken English.

B0B04B21 | English Language B2-1 | Z | 3 |
This course is designed as a full-year, two semester preparation course for the universitys compulsory B2-level English Examination (Anglický jazyk B2 - zkouška - B0B04B2Z\*). While

This course is designed as a full-year, two semester preparation course for the universitys compulsory B2-level English Examination (Anglický jazyk B2 - zkouška - B0B04B2Z\*). While the course is focused on helping students reach a level required to pass the B2-level English Examination (or improve their English for a higher mark), it also focuses more on the academic and technical vocabulary and grammar expected of students at the university level. \*NOTE: This exam is also used for determining an appropriate level of English for Erasmus / International Study.

This course is designed as a full-year, two semester preparation course for the universitys compulsory B2-level English Examination (Anglický jazyk B2 - zkouška - B0B04B2Z \*). While the course is focused on helping students reach a level required to pass the B2-level English Examination (or improve their English for a higher mark), it also focuses more on the academic and technical vocabulary and grammar expected of students at the university level. \*NOTE: This exam is also used for determining an appropriate level of English for Erasmus / International Study.

Code of the group: BTV

B0B04B22

Name of the group: Physical education

English Language B2-2

Requirement credits in the group: Requirement courses in the group:

Credits in the group: 0 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
TVV	Physical education	Z	0	0+2	Z,L	V
A003TV	Physical Education Ji í Drnek	Z	2	0+2	L,Z	V
TV-V1	Physical education	Z	1	0+2	Z,L	V
TVV0	Physical education	Z	0	0+2	Z,L	V

Characteristics of the courses of this group of Study Plan: Code=BTV Name=Physical education

A003TV	Physical Education	Z	2
TVV	Physical education	Z	0
TV-V1	Physical education	Z	1
TVV0	Physical education	Z	0

Code of the group: BTVK

Name of the group: Physical education courses

Requirement credits in the group: Requirement courses in the group:

Credits in the group: 0 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
TVKLV	Physical Education Course	Z	0	7dní	L	V
TVKZV	Physical Education Course	Z	0	7dní	Z	V

Characteristics of the courses of this group of Study Plan: Code=BTVK Name=Physical education courses

TVKLV	Physical Education Course	Z	0
TVKZV	Physical Education Course	Z	0

Code of the group: 2018\_BEEMVOL Name of the group: Elective subjects Requirement credits in the group: Requirement courses in the group:

Credits in the group: 0

Note on the group: ~Nabídku volitelných předmětů uspořádaných podle kateder najdete na webových stránkách

http://www.fel.cvut.cz/cz/education/volitelne-predmety.html\\

## List of courses of this pass:

Code	Name of the course	Completion	Credits
A003TV	Physical Education	Z	2
B0B01DRN	Differencial Equations and Numerical Analysis	Z,ZK	4
This course introdu	ces students to the classical theory of ordinary differential equations (separable and linear ODEs) and also to bsics of numerical meth	ods (errors in calc	ulations and
stability, numerica	I solutions of algebraic and differential equations and their systems). The course takes advantage of the synnergy between theoretic	al and practical po	int of view.
B0B01KANA	Complex Analysis	Z,ZK	4
The course is an	introduction to the fundamentals of complex analysis and its applications. The basic principles of Fourier, Laplace, and Z-transform	are explained, inclu	uding their
	applications, particularly to solving differential and difference equations.		T.
B0B01LAGA	Linear Algebra	Z,ZK	7
	ntroductory topics of linear algebra. It begins with fundamental concepts related to vector spaces and linear transform (such as linear d		
	coordinates of vectors, etc.). The next part of the course is devoted to matrix theory (determinants, inverse matrix, matrices of linear trications include solving systems of linear equations, geometry in three-dimensional space (including dot and cross products), and the of a matrix.		
B0B01MA1A	Mathematical Analysis 1  This is an introductory course to differential and integral calculus of functions of one real variable.	Z,ZK	6
B0B01MA2A	Mathematical Analysis 2	Z,ZK	6
	s an introduction to the differential and integral calculus in several variables and basic relations between curve and surface integrals		-
	series and power series with application to Taylor and Fourier series.		
B0B04A21	English Language A2-1	Z	
	The course is open to students who are beginners in their second language. Course objective: Achieving competence in basic E	nglish.	·
B0B04A22	English Language A2-2	Z	0
The course is ope	en to students who are beginners in their second foreign language. The course objective is to develop and sustain their basic knowle	dge of the English	language.
B0B04B11	English Language B1-1	Z	0
Course objective: B	roadening the basic knowledge of general English; mastering basic specialised language; focusing on text analysis and vocabulary exp English.	oansion; understan	ding spoken
B0B04B12	English Language B1-2	Z	0
Course objective: B	roadening the basic knowledge of general English; mastering basic specialised language; focusing on text analysis and vocabulary exp English.	pansion; understan	ding spoken
B0B04B1K	English language B1 - classified assessment verifying of the student's skills of B1 level	KZ	0
B0B04B21	English Language B2-1	Z	3
This course is design	gned as a full-year, two semester preparation course for the universitys compulsory B2-level English Examination (Anglický jazyk B2-	zkouška - B0B04	B2Z*). While
	ised on helping students reach a level required to pass the B2-level English Examination (or improve their English for a higher mark)		
academic and tech	nical vocabulary and grammar expected of students at the university level. *NOTE:This exam is also used for determining an appropria / International Study.	ate level of English	for Erasmus
B0B04B22	English Language B2-2	Z	3
	gned as a full-year, two semester preparation course for the universitys compulsory B2-level English Examination (Anglický jazyk B2 -		
	used on helping students reach a level required to pass the B2-level English Examination (or improve their English for a higher mark)		
academic and tech	nical vocabulary and grammar expected of students at the university level. *NOTE: This exam is also used for determining an appropria	ate level of English	for Erasmus
D0D04D07	/ International Study.	7 71/	
B0B04B2Z	English language B2 - exam	Z,ZK	0
	xam is a compulsory subject for all Faculty of Electrical Engineering students at the Czech Technical University. According to the Students at CTU (Part III, Article 4), a compulsory subject is one whose completion is a necessary condition in order to successfully con	-	
	es the passing of an examination evaluated on the scale A, B, C, D, or E (SERR Part III, Article 6). II) According to the Common Euro	. , , ,	U
-	EFR), an international standard for describing language ability, the definition of an English language learner who has achieved the B2	-	
	stand the main ideas of complex text on both concrete and abstract topics, including technical discussions in his/her field of specialisar		-
of fluency and spor	staneity that makes regular interaction with native speakers quite possible without strain for either party. Can produce clear, detailed to	ext on a wide range	e of subjects
and explain a view	vpoint on a topical issue giving the advantages and disadvantages of various options. III) Students who have successfully passed an	approved internat	ional exam
within the past five	years may present their certificate to the Department of Languages, Faculty of Electrical Engineering. Upon approval, students are the	n exempt from both	h the Written
	Test and the Oral Part. For a list of approved international exams go the department website: http://jazyky.fel.cvut.cz/		1
B0B16ET1	Ethic 1	KZ	4
	is to provide the students an orientation not only in general problems of ethics but above all to offer instructions for solving various situations in the students and orientation of the students are students.		
· · · · · · · · · · · · · · · · · · ·	the subject are discussions in which students can react to lectures but also to actual questions coming with news and look for the c		
B0B16FI1 We deal with the	Philosophy 1  e most important persons, schools and ideas of ancient philosophy. We are concerned especially on transdisciplinary nature of philosophy.	KZ sophy and connect	4 ion of old
DOD46FII	philosophical thoughts with recent problems of science, technology, economics and politics.	71/	2
B0B16FIL We deal with the	Philosophy  e most important persons, schools and ideas of ancient philosophy. We are concerned especially on transdisciplinary nature of philos  philosophical thoughts with recent problems of science, technology, economics and politics.	ZK sophy and connect	2 ion of old
B0B16HI1		KZ	1
	History 1		4
B0B16HT1	History of science and technology 1	KZ	4
B0B16HTE	History of technology and economic	ZK	2
B0B16MPL	Psychology for managers	ZK	2
B0B16MPS	Psychology	Z,ZK	4

B0B99PRPA	Procedural Programming	KZ	4
B1B01MEK	Mathematics for Economy	Z,ZK	5
The aim is to intro	duce the basic theory of probability and statistics, familiarise students with basic terms properties and methods used in working with rawith Markov chains, and show applications of these mathematical tools in economics and insurance.	ndom processes	, especiall
B1B02FY1	Physics 1	Z,ZK	8
	of physics at the Faculty of Electrical Engineering - Physics 1, is devoted to the introduction into two important areas of physics. The first e is the electric and magnetic field. Within the framework of the classical mechanics, the students study the particle kinematics; dynamics		
tudies. The classi	and rigid bodies. The students should be able to solve basic problems dealing with the description of mechanical systems, which they cal mechanics is followed by the relativistic mechanics, electric and magnetic field - both stationary as well as non-stationary. The stude e study of electrical circuits, theory of electrotechnical materials or radioelectronics. Apart of this, the knowledge gained in this course is consecutive course Physics 2.  Physics 2	nts can use the	facts gaine
The course Physic the theory of wave universal charact nuclear physics	Thysics 2 is closely linked with the course Physics 1. Within the framework of this course the students will first of all learn foundations of thermoves - will give to the students basic insight into the properties of waves and will help to the students to understand that the presented deter in spite of the waves character. Particular types of waves, such as acoustic or optical waves are the subjects of the following section will complete the student?s general education in physics. The knowledge gained in this course will help to the students in study of such imputer vision, measuring technique and will allow them to understand the principles of novel technologies and functioning of new electromagnets.	nodynamics. Fol scription of the v . Quantum mech modern areas a	lowing top vaves has anics and
B1B13MVE1	Materials for Power Electrical Engineering	Z,ZK	4
materials and se	al description of basic properties and basic types of materials for electrical engineering is carried out. Types of conductors, superconductive amiconductors, which are used in power electrical engineering, are presented. The stress is put on relationships between properties, ted in higher detail, with ceramics for electrical engineering, with properties of mica, glass and their applications, with environmental conductors, with and thick films and with selected nanomaterials and their applications.	chnology and the	use. The
B1B13PPS	Industrial computer systems	Z,ZK	4
-	ised on basic knowledges about computer control systems used in electrotechnic engineering and energetics. Students works with hard software tools and application examples. There are presented elementary digital circuits, the representation of numbers and their proces		-
	ock of microprocessor and microcomputer. The single chip microcomputer, embedded application, industrial PC and design to industrial	•	•
B1B13SSE1	Solar Systems and Electrochemical Sources	Z,ZK	5
he course familia	rizes students with the basic principles of electrochemical sources and photovoltaic cells and systems. At the beginning, the emphasis is		ng the bas
	equivalent circuits and mathematical description. In the next section, the basic types of electrochemical sources and their technical parameters are section.	-	-
-	become familiar with the technology of photovoltaic cells and modules. Another chapter is devoted to the basic applications such as sol course, students become familiar with economical and technological implications of the combination of solar systems and electrochemic		e end of th
B1B13TEP	Electrical engineering technological processes	Z,ZK	4
_	sed in electronics, laser, and other beam technologies and IC packaging will be characterized. There will also be discussed fundamenta ocesses. The subject is also the basis for producing single-crystal Si. Technology using plasma technology, packaging, and basic assen presented.	_	
	· ·		
B1B13VEZ	Manufacturing of Electronic Equipment	Z,ZK	6
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(obsolete text, cu	urrently valid is czech version) Mechanical and electrical design. The electric contact. Joining of conductors. Cooling of components and Soldering in electronics. Electromagnetic compatibility of electronic equipment. Protection of components and equipment sensitive on electronic equipment.	l equipment. Prir	ted circuit
(obsolete text, cooords fabrication.	urrently valid is czech version) Mechanical and electrical design. The electric contact. Joining of conductors. Cooling of components and Soldering in electronics. Electromagnetic compatibility of electronic equipment. Protection of components and equipment sensitive on electronics.	l equipment. Prir ectrostatic field. ( Z,ZK	ted circuit Certificatio
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B1B17EMP	Electromagnetic Field	Z,ZK	5
,	This course gets its students acquinted with principles and applied electromagnetic field theory basics.	•	
B1B31EOS	Electric circuits	Z,ZK	6
The subject descr	ibes fundamental methods of electrical circuit analysis. The aim is to unify different level of knowledge of students coming from school	ols of different cate	egories and
form the basis of kn	owledge necessary for next subjects. It presents the difference among physical circuit and its models, and then it presents the behavio	r of basic ideal circ	cuit elements
in DC circuits and ir	n sinusoidal steady state as well as transients, caused by changes in the circuit. Acquired knowledge should, among other things, also l	be used for critical	assessment
	of the results of the analysis and simulation of electrical circuits by means of software tools.		1
B1B34EPS	Elektronics for Heavy-current engeneering	KZ	4
	rent basic passive and active electronic components. Structure, physical and circuit properties of components. Component behavior w	•	
and large analog,	digital and optical signals. More complex circuit systems and communication technologies. Measuring the most important application	ns of modern sem	niconductor
	devices.		
B1B38EMA	Electrical Measurements	KZ	5
	tused to fundamentals of measurement and instrumentation. Based on the principle of the methods of electrical quantities measurement		-
frequency, resistan	ce, capacitance and inductance) a structure and properties of measuring instruments are explained including principles of their corre	ct application and	an accuracy
	estimation. Fundamentals of magnetic measurements close the course.	_	
B1BPROJ4	Bachelor project	Z	4
BBAP15	Bachelor thesis	Z	15
BEZB	Safety in Electrical Engineering for a Bachelor's Degree	Z	0
	safety course is to give the students basic knowledge of electrical equipment and installation as to avoid danger arising from operation		-
contains funda	amentals of Safety Electrical Engineering. In this way the students receive qualification of instructed person that enables them to worl	k on electrical equ	ipment.
BEZZ	Basic Health and Occupational Safety Regulations	Z	0
The guidelines were	e worked out based on The Training Scheme for Health and Occupational Safety designed for employees and students of the Czech	Technical Universi	ty in Prague,
which was provide	d by the Rector's Office of the CTU. Safety is considered one of the basic duties of all employees and students. The knowledge of He	ealth and Occupat	tional Safety
	regulations forms an integral and permanent part of qualification requirements. This program is obligatory.		
TV-V1	Physical education	Z	1
TVKLV	Physical Education Course	Z	0
TVKZV	Physical Education Course	Z	0
	Physical education	Z	0
TVV	Filysical education	_	0

For updated information see <a href="http://bilakniha.cvut.cz/en/f3.html">http://bilakniha.cvut.cz/en/f3.html</a> Generated: day 2025-06-08, time 01:04.