# Study plan

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

Faculty/Institute/Others: Faculty of Electrical Engineering

Department:

Branch of study guaranteed by the department: Common courses

Garantor of the study branch:

Program of study: Electrical Engineering, Power Engineering and Management

Type of study: Bachelor full-time

Required credits: 172 Elective courses credits: 8 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: 155

The role of the block: P

Code of the group: 2015\_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=2015\_BEEMBAP Name=Bachelor Project

DDAD15 Desheler thesis					
DBAP 13 Dacrieior triesis Z 13	IBBAPIS	Bacheior thesis		Z	15

Code of the group: 2015\_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=2015\_BEEMBBE Name=Safety of the bachelor's studies

BEZB Safety in Electrical Engineering for a Bachelor's Degree Z 0
The purpose of the safety course is to give the students basic knowledge of electrical equipment and installation as to avoid danger arising from operation of it. This introductory course contains fundamentals of Safety Electrical Engineering. In this way the students receive qualification of instructed person that enables them to work on electrical equipment.

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: 2015\_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:

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

Characteristics of	f the courses of this group of Study Plan: Code=2015_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 communal answers.									
B0B16FIL Philosophy ZK 2									
We deal with the most	important persons, schools and ideas of ancient philosophy. We are concerned especially on transdisciplinary nature of philo	sophy and connec	ction of old						
philosophical thoughts	with recent problems of science, technology, economics and politics.								
B0B16FI1	Philosophy 1	KZ	4						
We deal with the most	important persons, schools and ideas of ancient philosophy. We are concerned especially on transdisciplinary nature of philo	sophy and connec	ction of old						
philosophical thoughts	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: 2015\_BEEMP

Name of the group: Compulsory subjects of the programme

Requirement credits in the group: In this group you have to gain 136 credits

Requirement courses in the group: In this group you have to complete 26 courses

Credits in the group: 136

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
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
B1B15EN1	Power Engineering 1	Z,ZK	6	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

B1B34EP5	Vladimír Janí ek, Adam Bou a, Jan Novák, Tomáš Teplý, Tomáš Martan Vladimír Janí ek Vladimír Janí ek (Gar.)	KΖ	4	2P+2L	2	P
B1B02FY1	Physics 1 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
B0B01KAN	Complex Analysis Zden k Mihula, Hana Tur inová <b>Zden k Mihula</b> Zden k Mihula (Gar.)	Z,ZK	5	2P+2S	Z	Р
B0B01LAG	Linear Algebra Jakub Rondoš, Daniel Gromada, Josef Dvo ák, Ji í Velebil, Natalie Žukovec, Mat j Dostál <b>Ji í Velebil</b> Ji í Velebil (Gar.)	Z,ZK	8	4P+2S	Z	Р
B0B16MME	Macro and Microekonomics	Z,ZK	4	2P+2S	Z	Р
B0B01MA1	Mathematical Analysis 1 Josef Dvo ák, Martin K epela, Josef Tkadlec, Veronika Sobotíková Josef Tkadlec Josef Tkadlec (Gar.)	Z,ZK	7	4P+2S	Z,L	Р
B0B01MA2	Mathematical Analysis 2 Hana Tur inová, Miroslav Korbelá, Petr Hájek, Martin Bohata, Jaroslav Tišer, Karel Pospíšil, Paola Vivi <b>Petr Hájek</b> Jaroslav Tišer (Gar.)	Z,ZK	7	4P+2S	L,Z	Р
B1B13MVE	Materials for Power Electrical Engineering	Z,ZK	5	2P+2L	Z	Р
B0B99PRP	Procedural Programming	Z,ZK	6	2P+2C	Z	Р
B1BPROJ4	Bachelor project Jan Mikeš, Zden k Müller, Jan Kyncl, Jan Bauer, Ivana Beshajová Pelikánová, 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
B0B01STP	Statistics and Probability Jakub Stan k, Miroslav Korbelá , Kate ina Helisová, Bogdan Radovi Kate ina Helisová Kate ina Helisová (Gar.)	Z,ZK	5	2P+2S	L	Р
B1B13VST	Technology in Electrical Engineering	Z,ZK	5	3P+2L	L	Р
B1B15VYA	Computational Applications Jan Kyncl Jan Kyncl (Gar.)	KZ	4	2P+2C	L	Р
B1B13VVZ	Manufacturing of Power Devices	Z,ZK	5	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
B1B14ZEL	Fundamentals of Electrotechnical Engineering	KZ	3	2P+2C	Z	Р
B1B14ZVE	Power Electronics Jan Bauer, Ji í Lettl Ji í Lettl (Gar.)	Z,ZK	4	2P+2L	Z	Р
B0B01DRN Dif	e courses of this group of Study Plan: Code=2015_BEEMP Nam fferencial Equations and Numerical Analysis	-		Z	,ZK	4
	ents to the classical theory of ordinary differential equations (separable and linear ODEs of algebraic and differential equations and their systems). The course takes advantage				•	
	or algebraic and differential equations and their systems). The course takes advantage ectrical Measurements	or the synnergy	netween t		KZ	5
The subject is focused to fur frequency, resistance, capac	ndamentals of measurement and instrumentation. Based on the principle of the method citance and inductance) a structure and properties of measuring instruments are explair f magnetic measurements close the course.			easurement (v	oltage, currer	nt, power,
	ectric circuits			7	,ZK	6
	ectric circuits amental methods of electrical circuit analysis. The aim is to unify different level of knowle	edge of students	comina fra			
•	necessary for next subjects. It presents the difference among physical circuit and its mod	•	•			•

ΚZ

2P+2L

**Elektronics for Heavy-current engeneering** 

Vladimír Janí ek, Adam Bou a, Jan Novák, Tomáš Teplý, Tomáš Martan

B1B34EPS

form the basis of knowledge necessary for next subjects. It presents the difference among physical circuit and its models, and then it presents the behavior of basic ideal circuit elements in DC circuits and in sinusoidal steady state as well as transients, caused by changes in the circuit. Acquired knowledge should, among other things, also be used for critical assessment of the results of the analysis and simulation of electrical circuits by means of software tools.

B1B15EN1	15EN2 Power Engineering 2 17EMP Electromagnetic Field course gets its students acquinted with principles and applied electromagnetic field theory basics.	∠,∠K	6
B1B15EN2	Power Engineering 2	Z,ZK	5
B1B17EMP	B15EN2 Power Engineering 2 B17EMP Electromagnetic Field s course gets its students acquinted with principles and applied electromagnetic field theory basics.	Z,ZK	5
This course gets its stu	dents acquinted with principles and applied electromagnetic field theory basics.		
B1B34EPS	B1B17EMP Electromagnetic Field  This course gets its students acquinted with principles and applied electromagnetic field theory basics.		4

Knowledge of current basic passive and active electronic components. Structure, physical and circuit properties of components. Component behavior when working with both small and large analog, digital and optical signals. More complex circuit systems and communication technologies. Measuring the most important applications of modern semiconductor devices

B1B02FY1 Physics 1 Z,ZK

| Elektronics for Heavy-current engeneering

The basic course of physics at the Faculty of Electrical Engineering - Physics 1, is devoted to the introduction into two important areas of physics. The first one is a classical mechanics and the second one is the electric and magnetic field. Within the framework of the classical mechanics, the students study the particle kinematics; dynamics of the mass particle, system of mass particles and rigid bodies. The students should be able to solve basic problems dealing with the description of mechanical systems, which they can meet during their further studies. The classical mechanics is followed by the relativistic mechanics, electric and magnetic field - both stationary as well as non-stationary. The students can use the facts gained in this course in the study of electrical circuits, theory of electrotechnical materials or radioelectronics. Apart of this, the knowledge gained in this course is required for the study of the consecutive course Physics 2.

e course is an introduction to the fundamentals of complex analysis and its applications. Particularly to solving differential and difference opequations.	2400000			
the theory of waves—will give to the students basic insight into the properties of waves and maken in paile of the waves baried to the paile of the waves and the subject of the following section. Caushum mechanics and clear physics will complete the student's general education in physics. The knowledge gained in this course will help to the student's general education in physics. The knowledge gained in this course will help to the student's location of the waves he course is an introduction to the furdimentals of complex analysis.  So course is an introduction to the furdimentals of complex enalysis and its applications. The basic principles of Fourier, Laplace, and Z-transform are explained, including their plications, particularly to solving differential and difference equations.  BIDILAG Linear Algebra Paries.  The calculation of matrices (seleminansis, inverse marticise, and since map, eigenvalues and eigenvectors, diagonalisation, etc) is covered ene ch. The applications including system of linear equations, the generalty of a 30 space (including the scalar product and the vector product) and SVD.  BIDIGAME Macro and Microelkonomics.  BIDIGAME Macro and Microelkonomics of the matrices of the intension of the course is to introduction; to the during system, monetary both, laborator, because the fundamental and integral calculus of functions of one variable.  BIDIGAME Macro and Microelkonomics of the course is to introduce students to basists of differential and integral calculus of functions of one variable.  BIDIGAME Macro and Microelkonomics of the course is to introduce students to basics of differential and integral calculus of functions of one variable.  BIDIAMAE Macro and Microelkonomics of the course is to introduce students to basics of differential and integral calculus of functions of one variable.  BIDIAMAE Macro and Microelkonomics of the particular production of t	31BU2FY2	Physics 2	Z,ZK	7
versal drawfacter in splace of the waves character. Particular types of waves, such as acoustics or optical waves are the subjects of the following section. Cuantum mechanics and observable the students is particularly speared education in physics. The knowledge gained in this course will help be the subdents in study of such modern areas as robotics, most vivial mechanics and the substance of the subdents in study of such modern areas as robotics, most vivial mechanics and the substance of the substance in study of such modern areas as robotics.   BIOTIKAN Complex Analysis Z.Z.K. 5 sources as in introduction to the fundamentals of complex analysis and its applications. The basic principles of Fourier, Laplace, and Z-transform are explained, including their plications, particularly as solving differential and difference quastions. By explained in the substance of the substance	The course Physics 2	is closely linked with the course Physics 1. Within the framework of this course the students will first of all learn foundations	of thermodynamics.	Following topic
clear physics will complete the student's general education in physics. The knowledge gained in this course will help to the student's entranced entering property valor, measuring educingue and will allow them to understand the principles of novel technologies and functioning of new electronic microsity of such modern areas as robotics, properties of the course is an introduction to the fundmentals of complex analysis and the applications. The basic principles of Fourier, Laplace, and Z-transform are explained, including their plications, particularly to solving differential and difference equations.  1801 I.A.S. Linear Algebra e course covers the initial parts of linear algebra. Firstly, the basic notions of a linear space and linear mappings are covered (linear equations, the generatry of a 30 space) (including their principles of fourier). The activation of introduces (eleterinamics, everee marriaces, area marrias, elementary and elegenometrics, elementary in the carbon of their contributions, in the submitted of the contribution of the contribution of their analysis and the submitted of their contributions and their contributions are equations, the generatry of a 30 space (including the scalar product and the vector product) and SVD.  1816 ISBME 1816 I.M. Alexer and Mittercekonomics.  1816 ISBME I.M. Alexer and Mittercekonomics of the submitted of the contribution of the contribution of the submitted of the contribution of the differential and integral calculus of functions of one variable.  182 I.M. 4  1800 IMMA I.M. Mathematical Analysis I. The contribution of the contribution of the contribution of the contribution of the differential and integral calculus of functions of one variable.  1813 IMME I.M. Mathematical for Power Electrical Engineering and product of the submitted by the power series with application in higher data. With caracteris for Power Electrical engineering as presented, the respectation	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 preser	nted description of t	he waves has a
Impater vision, measuring technique and will allow them to understand the principles of novel technicogies and functioning of new electronic devices.	ıniversal character in	spite of the waves character. Particular types of waves, such as acoustic or optical waves are the subjects of the following se	ection. Quantum me	chanics and
SEDITAN   Complex Analysis   Controller Analysis   Z.ZK   5	nuclear physics will co	emplete 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,
e course is an introduction to the fundamentals of complex analysis and its applications. Particularly to solving differential and difference opequations.  15011A.G. Linear Algebra  1 course or set intelligenate of linear algebra. Firstly, the basic notions of a linear space and linear mappings are covered (linear dependence and independence). Busis, coordinate or source covers the initial parts of linear algebra. Firstly, the basic notions of a linear space and linear mappings are covered (linear dependence and independence). Busis, coordinately in the course of the co	computer vision, mea	suring technique and will allow them to understand the principles of novel technologies and functioning of new electronic dev		
Discriment   Dis	B0B01KAN	Complex Analysis	Z,ZK	5
SEOTLAG   Linear Algebra   Z.ZK   8   En outcomes the limital pairs of linear apples a Priestly, the basic notions of a linear space and linear mappings are covered (linear dependence and independence), basis, coordinary in the calculus of martices (eleterminants, inverse martices, law of demand, law of supply, marticet equilibrium, price and income elitasticities, consumer's behavior, produce's behavior, cost, revertile, marticet failure, marticet, marticet	The course is an intro	duction to the fundamentals of complex analysis and its applications. The basic principles of Fourier, Laplace, and Z-transfor	m are explained, inc	cluding their
e course covers the initial parts of linear algebra, Firstly, the basic notions of a linear space and linear mappings are covered (linear dependence and independence, basis, coordinally). The calculus of martines (determinants, inverse martines, martines and linear mapping and martines (alternations). The applications in living systems of linear equations, the geometry of a 3D space (including the scalar product and the vector product) and SVD.    2, ZK   4	applications, particula	rly to solving differential and difference equations.		
Procedure of matrices (determinants, inverse matrices, matrices of a linear map, eigenvalues and eigenvectors, diagonalisation, etc) is covered next. The applications incluving systems of linear equations, the geometry of a 50 papera (including the scalar product and the vector product) and SVD.    Procedure of the procedure of the process of the	B0B01LAG	Linear Algebra	Z,ZK	8
wing systems of linear equations, the geometry of a 3D space (including the scalar product and the vector product) and SVD.    Bit 16MME   Macro and Microekonomics   Z,ZK   4	he course covers the	initial parts of linear algebra. Firstly, the basic notions of a linear space and linear mappings are covered (linear dependence an	id independence, ba	sis, coordinates
Bit SMME   Macro and Microekonomics   Z,ZK   4	etc). The calculus of n	natrices (determinants, inverse matrices, matrices of a linear map, eigenvalues and eigenvectors, diagonalisation, etc) is covi	ered next. The appli	cations include
sic economic terms, market, law of demand, law of supply, market equilibrium, price regulation, price and income elasticities, consumer's behavior, producer's behavior, producer	olving systems of line	ear equations, the geometry of a 3D space (including the scalar product and the vector product) and SVD.		
infi, market failure, monopoly, government macroeconomic policy, gross domestic product, multipliers, money, inflation, banking system, monetary policy, labor market, business set, fiscal policy, foreign trade policy, comparative advantage, CR and EU, Euro.  2, ZK 7  8 alm of the course is to introduce students to basics of differential and integral calculus of functions of one variable.  3, ZK 7  8 subject covers an introduction to the differential and integral calculus in several variables and basic relations between curve and surface integrals. Other part contains function rises and power series with application to Taylor and Fourier series.  18 13 MVE Materials for Power Electrical Engineering  18 13 MVE Materials for Power Electrical Engineering  18 13 MVE Materials for Power Electrical Engineering  18 13 MVE Materials for Power Electrical Engineering, are presented. The stress is put on relationships between properties, technology and the use. The definition and which films and which selected an anomaterials and their applications.  18 13 MVE meeting in the series of the electrical engineering, with properties of mics, glass and their applications, with environmental conductive joining, with material this and thick films and with selected an anomaterials and their applications.  18 13 PPS  18 Industrial computer systems  18 2, ZK 6  18 13 PPS  18 Industrial computer systems  18 13 PPS  18 Industrial computer systems  18 2, ZK 4  19 14 B13 PPS  18 Industrial computer systems  18 2, ZK 5  19 2 4  19 3 MY 19 14 B13 PPS  19 15 Industrial computer. The single chip microcomputer, embedded application, industrial PC and design to industrial condition are presented alementary digital circuits, the representation of numbers and their propicts and amental block of microprocessor and microcomputer. The single chip microcomputer, embedded application, industrial PC and design to industrial condition are presented international tools to microprocessor and microcomputer. The single chip microcomputer, embedded applicat	BOB16MME	Macro and Microekonomics	Z,ZK	4
Begin policy, foreign trade policy, comparative advantage, CR and EU, Euro.	Basic economic terms	, market, law of demand, law of supply, market equilibrium, price regulation, price and income elasticities, consumer's behavior	, producer's behavio	or, cost, revenue
BOIMA1   Mathematical Analysis 1   Z,ZK   7	rofit, market failure, r	nonopoly, government macroeconomic policy, gross domestic product, multipliers, money, inflation, banking system, moneta	ry policy, labor mark	et, business
e aim of the course is to introduce students to basics of differential and integral calculus of functions of one variable.    Mathematical Analysis 2	ycle, fiscal policy, for	eign trade policy, comparative advantage, CR and EU, Euro.		
e aim of the course is to introduce students to basics of differential and integral calculus of functions of one variable.    Description   De	30B01MA1	Mathematical Analysis 1	Z,ZK	7
e subject covers an introduction to the differential and integral calculus in several variables and basic relations between curve and surface integrals. Other part contains function rices and power series with application to Taylor and Fourier series.  IB13MVE   Materials for Power Electrical Engineering   Z,ZK   5    first a physical description of basic properties and basic types of materials for electrical engineering is carried out. Types of conductors, superconductors, insulators, magnetic terterias and seminoconductors, which are used in power electrical engineering, are presented. The stress is put on relationships between properties, technology and the use. The intensity of the part of the properties of mica, glass and their applications, with environmental conductive joining, with material thin and thick films and with selected nanomaterials and their applications.  IB18PRD   Procedural Programming   Z,ZK   6    IB18PRDJ4   Bachelor project   Z   4    IB13PPS   Industrial computer systems   Z,ZK   4    Subject is focused on basic knowledges about computer control systems used in electrotechnic engineering and energetics. Students works with hardware for data acquisition ta processing, software tools and application examples. There are presented elementary digital circuits, the representation of numbers and their processing in microcomputer and application examples. There are presented elementary digital circuits, the representation of numbers and their processing in microcomputer as a time the course is to introduce and microcomputer. The single chip microcomputer, embedded application, industrial PC and design to industrial condition are presented.  IB13VST   Technology in Electrical Engineering  IB13VST   Technology in Electrical Engineering  IB13VST   Technology in Electrical Engineering  IB13VST   Technology of Power semiconductive devices and processes will also been presented. Next part of a course will be focused on basic technologies for semiconductors including power integration. Beam technolo	he aim of the course		' '	
e subject covers an introduction to the differential and integral calculus in several variables and basic relations between curve and surface integrals. Other part contains function rices and power series with application to Taylor and Fourier series.  IB13MVE   Materials for Power Electrical Engineering   Z,ZK   5    first a physical description of basic properties and basic types of materials for electrical engineering is carried out. Types of conductors, superconductors, insulators, magnetic terterias and seminoconductors, which are used in power electrical engineering, are presented. The stress is put on relationships between properties, technology and the use. The intensity of the part of the properties of mica, glass and their applications, with environmental conductive joining, with material thin and thick films and with selected nanomaterials and their applications.  IB18PRD   Procedural Programming   Z,ZK   6    IB18PRDJ4   Bachelor project   Z   4    IB13PPS   Industrial computer systems   Z,ZK   4    Subject is focused on basic knowledges about computer control systems used in electrotechnic engineering and energetics. Students works with hardware for data acquisition ta processing, software tools and application examples. There are presented elementary digital circuits, the representation of numbers and their processing in microcomputer and application examples. There are presented elementary digital circuits, the representation of numbers and their processing in microcomputer as a time the course is to introduce and microcomputer. The single chip microcomputer, embedded application, industrial PC and design to industrial condition are presented.  IB13VST   Technology in Electrical Engineering  IB13VST   Technology in Electrical Engineering  IB13VST   Technology in Electrical Engineering  IB13VST   Technology of Power semiconductive devices and processes will also been presented. Next part of a course will be focused on basic technologies for semiconductors including power integration. Beam technolo	30B01MA2	Mathematical Analysis 2	7.7K	7
Ites and power series with application to Taylor and Fourier series.  Ites and power series with application to Taylor and Fourier series.  Ites and semiconductors, which are used in power electrical Engineering is carried out. Types of conductors, superconductors, insulators, magnetic terials and semiconductors, which are used in power electrical engineering, are presented. The stress is put on relationships between properties, technology and the use. The identified may be the carried of the electrical engineering, with properties of mica, glass and their applications, with environmental conductive joining, with material thin and thick films and with selected nanomaterials and their applications.  Items and thick films and with selected nanomaterials and their applications.  Items and the selected nanomaterials and their applications.  Items and an application sexamples.  Items and an application sexamples. There are presented elementary digital circuits, the representation of numbers and their processing in microcomputer and admental block of microprocessor and microcomputer. The single chip microcomputer, embedded application, industrial PC and design to industrial condition are presented.  Items and the course is to introduce students to the fundamentals of probability theory and mathematical statistics, their computational methods as well as applications and plant and pla		· ·	1 / 1	-
B13MVE   Materials for Power Electrical Engineering   Z,ZK   5	=	-		
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e course tocuses on the basic types of power semiconductor converters, which are used to change the parameters of electricity. Students are introduced to the basic principles	B1B13PPS The subject is focused at a processing, softwandamental block of a B0B01STP The aim of the course mathematical tools to B1B13VST The discourse production systems in a more perchaption processing plates and the subject and the sub	Industrial computer systems In on basic knowledges about computer control systems used in electrotechnic engineering and energetics. Students works with are tools and application examples. There are presented elementary digital circuits, the representation of numbers and their microprocessor and microcomputer. The single chip microcomputer, embedded application, industrial PC and design to indust its other incomposes of an industrial pc and design to indust its other incomposes of an industrial pc and design to indust its other incomposes of an industrial pc and design to indust its other incomposes of an industrial pc and design to industrial pc and design industri	th hardware for data processing in microstrial condition are processing in microstrial and suffer semiconductive danufacturing.  Z,ZK  In the basic of elect of drives with DC are processing and propertie ehavioral and switch KZ  sed on an explanation	4 a acquisition are occomputer and oresented. 5 ns of these 5 windings,drying am technologie 4 5 ect is devoted avices and 5 ric drives logic and AC machine 5 s of rotating araing problems. 3 on and practicin
	B1B13PPS The subject is focused lata processing, softwandamental block of B0B01STP The aim of the course mathematical tools to B1B13VST Production systems in and impregnation procechnologies using plata B15VYA B1B15VYA B1B15VYA B1B14VZ The topic of the subject mansformers and rota converters including to both the course provides to control, continuous course explained. B1B14ZSP The course explains the course explains the course extends not basics electroteching B1B14ZVE	Industrial computer systems Industrial probability Industrial computer systems and place since statistics, their computational methods appreciate statistics of secure and methods appreciate statistics, their computational methods appreciate statistics of secure and methods appreciate statistics, their computational methods appreciate statistics, their computation	th hardware for data processing in microstrial condition are processing in microstrial condition. Beautiful and processing in microstrial conditions are semiconductive dranufacturing.  Z,ZK  Tan the basic of elect of drives with DC and the basic of elect of drives with DC and the basic of elect of drives and properties the enavioral and switch the conditions and properties are processing and properties and an explanation and switch the conditions and properties and an explanation and the conditions are processed on an explanation and the conditions are processed in the processing in microstrial conditions are processed in the processing in microstrial condition are processing in microstrial conditions are processing in microstrial conditions are processed in the processing in microstrial conditions are processed in the p	4 a acquisition and occomputer and oresented.  5 ns of these  5 windings,drying am technologies  4 5 ect is devoted to evices and  5 ric drives logic and AC machine  5 s of rotating and aning problems.  3 on and practicin

Code of the group: 2015\_BZAJ

Name of the group: Exam from the english language

properties and applications of power electronic converters, their advantages, disadvantages, and fuse sizing.

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

B0B04B1K	English language B1 - classified assessment	KZ	0
verifying of the student'	s skills of B1 level	NZ	
B0B04B2Z	English language B2 - exam	Z,ZK	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: Compulsory courses of the specialization

Minimal number of credits of the block: 13

The role of the block: PO

Code of the group: 2015\_BEEMPO1

Name of the group: Compulsory subjects of the branch

Requirement credits in the group: In this group you have to gain 13 credits

Requirement courses in the group: In this group you have to complete 3 courses

Credits in the group: 13

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
B1B13SEZ	Electrochemical Sources and Photovoltaics	Z,ZK	4	2P+2L	L	PO
B1B15EN3	Power Engineering 3 Jan Kyncl, Petr Žák, Petr Žák Jan Kyncl (Gar.)	KZ	4	2P+2L	Z	РО
B1B14MIS	Microprocessors for Power Systems Jan Bauer Jan Bauer Ji í Zd nek (Gar.)	Z,ZK	5	2P+2L	Z	PO

### Characteristics of the courses of this group of Study Plan: Code=2015\_BEEMPO1 Name=Compulsory subjects of the branch

B1B13SEZ | Electrochemical Sources and Photovoltaics | Z,ZK | 4
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.

B1B15EN3	Power Engineering 3	KZ	4
B1B14MIS	Microprocessors for Power Systems	7.7K	5

Power electronics control computer structure, digital signal processor and ALU added features for fast real time calculations. Interrupt system and DMA system, analog signal measurement, fast impulse signal measurement, fast impulse generation support, inter-computer communication, system and power management, programming languages for power systems software development, programming techniques, software development tools (simulators, emulators, monitors), input signal conditioning circuitry, conversion from analog signals to digital processing, time sampling, amplitude quatization, power electronics control block design and implementation, difference equations and control algorithms, fixed and floating point calculations, debugging methods, program parametrization, guides and rules for implementation and application of power system control computers. Real time operating system, scheduler, dispatcher and another features and guides for application

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 4

The role of the block: PV

Code of the group: 2015 BEEMPV

Name of the group: Compulsory subjects of the programm

Requirement credits in the group: In this group you have to gain at least 4 credits (at most 12)

Requirement courses in the group: In this group you have to complete at least 1 course (at most 3)

Credits in the group: 4
Note on the group:

. 1010 011 1110 9104	Γ'					
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
B1B15EPR	Projects in Power Engineering	KZ	4	2P+2S	L	PV
B1B13PTE	Advanced technology in electrical engineering	Z,ZK	4	2P+2L	L	PV
B1B14TME	Engineering mechanics	Z,ZK	4	2P+2C	L	PV

Characteristics of the courses of this group of Study Plan: Code=2015\_BEEMPV Name=Compulsory subjects of the programm

B1B15EPR	Projects in Power Engineering	KZ	4
B1B13PTE	Advanced technology in electrical engineering	Z,ZK	4

The topic of subject is oriented on selected materials and technics which are offering a new properties and facilities to electrical products. New superconductive materials, special pure polymers and their composites, materials with memory of form, inteligent polymers, materials and structures based on nanoparticles. Selected types of beam technics and their use in practice.

B1B14TME Engineering mechanics

Z,ZK 4

This course provides knowledge of applied mechanics for the industry practice. Analysis of constructional elements and their dimensioning. Kinematics of simple mechanisms. Dynamic behaviour of mechanical systems, mechanic vibrations. Thermodynamics of real gases and vapours, their processes an cycles, basic comparative cycles of heat machines. Fundamentals of hydrodynamics, transport losses in hydraulic systems.

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	V
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 s	tudents who are beginners in their second language. Course objective: Achieving competence in basic English.		
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: Broad	ening the basic knowledge of general English; mastering basic specialised language; focusing on text analysis and vocabulary	expansion; under	standing spoken
English.			
B0B04B12	English Language B1-2	Z	0
Course objective: Broad	ening the basic knowledge of general English; mastering basic specialised language; focusing on text analysis and vocabulary	expansion; under	standing 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 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.

B0B04B22 English Language B2-2

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 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

Name of the group: Physical education

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

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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

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

Code of the group: 2015\_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		Z,ZK	4
This course introdu	Differencial Equations and Numerical Analysis lices students to the classical theory of ordinary differential equations (separable and linear ODEs) and also to bsics of numerical methods.	ods (errors in cal	
stability, numerica	al solutions of algebraic and differential equations and their systems). The course takes advantage of the synnergy between theoretica	l and practical po	oint of view.
B0B01KAN The course is an	Complex Analysis introduction to the fundamentals of complex analysis and its applications. The basic principles of Fourier, Laplace, and Z-transform are provided to the second of the control of the co	Z,ZK re explained, incl	5 uding their
DODOLL AC	applications, particularly to solving differential and difference equations.	Z,ZK	0
B0B01LAG	Linear Algebra   the initial parts of linear algebra. Firstly, the basic notions of a linear space and linear mappings are covered (linear dependence and inde	•	8 coordinate
	of matrices (determinants, inverse matrices, matrices of a linear map, eigenvalues and eigenvectors, diagonalisation, etc) is covered resolving systems of linear equations, the geometry of a 3D space (including the scalar product and the vector product) and SV	ext. The applicat	
B0B01MA1	Mathematical Analysis 1  The aim of the course is to introduce students to basics of differential and integral calculus of functions of one variable.	Z,ZK	7
B0B01MA2	Mathematical Analysis 2	Z,ZK	7
The subject cover	rs 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.	Other part contai	ns function
B0B01STP	Statistics and Probability	Z,ZK	5
The aim of the c	ourse is to introduce students to the fundamentals of probability theory and mathematical statistics, their computational methods as w mathematical tools to practical examples.	ell as application	s of these
B0B04A21	English Language A2-1  The course is open to students who are beginners in their second language. Course objective: Achieving competence in basic Er	Z iglish.	
B0B04A22	English Language A2-2	Z	0
The course is op-	n to students who are beginners in their second foreign language. The course objective is to develop and sustain their basic knowled	ge of the English	language.
B0B04B11 Course objective: B	English Language B1-1 Broadening the basic knowledge of general English; mastering basic specialised language; focusing on text analysis and vocabulary expa	Z ansion; understar	0 nding spoke
B0B04B12	English Language B1-2	Z	0
	Trigits in Early dayle 51-2  broadening the basic knowledge of general English; mastering basic specialised language; focusing on text analysis and vocabulary experiences.  English.		1
B0B04B1K	English language B1 - classified assessment  verifying of the student's skills of B1 level	KZ	0
B0B04B21 his course is desi	English Language B2-1 gned as a full-year, two semester preparation course for the universitys compulsory B2-level English Examination (Anglický jazyk B2 -	Z zkouška - BOBO	3 B2Z*). Wh
	used on helping students reach a level required to pass the B2-level English Examination (or improve their English for a higher mark), nical vocabulary and grammar expected of students at the university level. *NOTE: This exam is also used for determining an appropriat	it also focuses m	
academic and tech	used on helping students reach a level required to pass the B2-level English Examination (or improve their English for a higher mark), nical vocabulary and grammar expected of students at the university level. *NOTE: This exam is also used for determining an appropriat  / International Study.	it also focuses m e level of English	for Erasmi
cademic and tech	used on helping students reach a level required to pass the B2-level English Examination (or improve their English for a higher mark), nical vocabulary and grammar expected of students at the university level. *NOTE: This exam is also used for determining an appropriat / International Study.  English Language B2-2	it also focuses me level of English	for Erasm
B0B04B22 This course is design the course is focus	used on helping students reach a level required to pass the B2-level English Examination (or improve their English for a higher mark), nical vocabulary and grammar expected of students at the university level. *NOTE: This exam is also used for determining an appropriat / International Study.  English Language B2-2 gned as a full-year, two semester preparation course for the universitys compulsory B2-level English Examination (Anglický jazyk B2 - z used on helping students reach a level required to pass the B2-level English Examination (or improve their English for a higher mark), nical vocabulary and grammar expected of students at the university level. *NOTE: This exam is also used for determining an appropriat	it also focuses m e level of English Z :kouška - B0B04 it also focuses m	for Erasmond 3 B2Z *). Who
B0B04B22 This course is design the course is focused and technic	used on helping students reach a level required to pass the B2-level English Examination (or improve their English for a higher mark), nical vocabulary and grammar expected of students at the university level. *NOTE: This exam is also used for determining an appropriat / International Study.  English Language B2-2 gned as a full-year, two semester preparation course for the universitys compulsory B2-level English Examination (Anglický jazyk B2 - z used on helping students reach a level required to pass the B2-level English Examination (or improve their English for a higher mark), nical vocabulary and grammar expected of students at the university level. *NOTE: This exam is also used for determining an appropriat / International Study.	it also focuses me level of English  Z  kouška - B0B04 it also focuses me level of English	for Erasmu 3 B2Z *). White on the for Erasmu
B0B04B22 This course is designated the course is focused and tech B0B04B2Z	used on helping students reach a level required to pass the B2-level English Examination (or improve their English for a higher mark), nical vocabulary and grammar expected of students at the university level. *NOTE: This exam is also used for determining an appropriat / International Study.  English Language B2-2 gned as a full-year, two semester preparation course for the universitys compulsory B2-level English Examination (Anglický jazyk B2 - z used on helping students reach a level required to pass the B2-level English Examination (or improve their English for a higher mark), nical vocabulary and grammar expected of students at the university level. *NOTE: This exam is also used for determining an appropriat / International Study.  English language B2 - exam	it also focuses me e level of English  Z tkouška - B0B04 it also focuses me level of English	for Erasm  3 B2Z *). Whater on the for Erasm  0
B0B04B22 This course is designed the course is focused and tech B0B04B2Z The B2 English E	used on helping students reach a level required to pass the B2-level English Examination (or improve their English for a higher mark), nical vocabulary and grammar expected of students at the university level. *NOTE: This exam is also used for determining an appropriat / International Study.  English Language B2-2 gned as a full-year, two semester preparation course for the universitys compulsory B2-level English Examination (Anglický jazyk B2 - z used on helping students reach a level required to pass the B2-level English Examination (or improve their English for a higher mark), nical vocabulary and grammar expected of students at the university level. *NOTE: This exam is also used for determining an appropriat / International Study.  English language B2 - exam Exam is a compulsory subject for all Faculty of Electrical Engineering students at the Czech Technical University. According to the Students at the Czech Technical University.	it also focuses me e level of English  Z  kouška - B0B04 it also focuses me level of English  Z,ZK y and Examination	for Erasm  3 B2Z *). Whence on the for Erasm  0 on Rules a
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	Discript 4	7 71/	
B1B02FY1	Physics 1	Z,ZK	8
ne basic course of physic	cs at the Faculty of Electrical Engineering - Physics 1, is devoted to the introduction into two important areas of physics. The first	one is a classic	al mechanic
d the second one is the	electric and magnetic field. Within the framework of the classical mechanics, the students study the particle kinematics; dynamics	of the mass pa	rticle, syste
mass particles and rigi	id bodies. The students should be able to solve basic problems dealing with the description of mechanical systems, which they c	can meet during	their furthe
udies. The classical med	chanics is followed by the relativistic mechanics, electric and magnetic field - both stationary as well as non-stationary. The stude	ents can use the	facts gaine
this course in the study	of electrical circuits, theory of electrotechnical materials or radioelectronics. Apart of this, the knowledge gained in this course is	s required for the	study of the
	consecutive course Physics 2.		
B1B02FY2	Physics 2	Z,ZK	7
	closely linked with the course Physics 1. Within the framework of this course the students will first of all learn foundations of therr		llowina topi
	Il give to the students basic insight into the properties of waves and will help to the students to understand that the presented de	-	
	pite of the waves character. Particular types of waves, such as acoustic or optical waves are the subjects of the following section		
	plete the student?s general education in physics. The knowledge gained in this course will help to the students in study of such		
' '	vision, measuring technique and will allow them to understand the principles of novel technologies and functioning of new electr		,
B1B13MVE	Materials for Power Electrical Engineering	Z,ZK	5
	ription of basic properties and basic types of materials for electrical engineering is carried out. Types of conductors, superconductors,	•	1
	ductors, which are used in power electrical engineering, are presented. The stress is put on relationships between properties, ter		-
	er detail, with ceramics for electrical engineering, with properties of mica, glass and their applications, with environmental condu		
student will meet, in nigh	for thin and thick films and with selected nanomaterials and their applications.	uctive joiling, w	un material
DADAODDO		7 71/	T 4
B1B13PPS	Industrial computer systems	Z,ZK	4
	basic knowledges about computer control systems used in electrotechnic engineering and energetics. Students works with hard		-
· -	e tools and application examples. There are presented elementary digital circuits, the representation of numbers and their proce	-	-
	nicroprocessor and microcomputer. The single chip microcomputer, embedded application, industrial PC and design to industrial		
B1B13PTE	Advanced technology in electrical engineering	Z,ZK	4
ne topic of subject is orie	ented on selected materials and technics which are offering a new properties and facilities to electrical products. New supercond	luctive materials	special pu
oolymers and their comp	osites, materials with memory of form, inteligent polymers, materials and structures based on nanoparticles. Selected types of beau	am technics and	I their use i
	practice.		
B1B13SEZ	Electrochemical Sources and Photovoltaics	Z,ZK	4
	udents with the basic principles of electrochemical sources and photovoltaic cells and systems. At the beginning, the emphasis is	,	1
	ent circuits and mathematical description. In the next section, the basic types of electrochemical sources and their technical parame		-
· · ·	e familiar with the technology of photovoltaic cells and modules. Another chapter is devoted to the basic applications such as so	-	-
	students become familiar with economical and technological implications of the combination of solar systems and electrochemic		
	Technology in Electrical Engineering	Z,ZK	5
B1B13VSI I			-
B1B13VST		utacturina at wur	
Production systems in ele	ectrical engineering will be characterized, their arrangement and basic technologies for mechanical joints and plastic parts. Manuages will also been presented. Next part of a course will be focused on basic technologies for comiconductors including power into	_	
Production systems in ele	ses will also been presented. Next part of a course will be focused on basic technologies for semiconductors including power inte	_	
Production systems in ele	ses will also been presented. Next part of a course will be focused on basic technologies for semiconductors including power inte technologies using plasma, packaging and basic assembly technologies will also been presented.	egration. Beam	echnologie
Production systems in ele and impregnation process	ses will also been presented. Next part of a course will be focused on basic technologies for semiconductors including power into technologies using plasma, packaging and basic assembly technologies will also been presented.  Manufacturing of Power Devices	egration. Beam	echnologies
Production systems in ele and impregnation process B1B13VVZ	ses will also been presented. Next part of a course will be focused on basic technologies for semiconductors including power into technologies using plasma, packaging and basic assembly technologies will also been presented.  Manufacturing of Power Devices  focused on manufacturing of power electrical machines and devices from construction and technological point of wiev. Main part	egration. Beam  Z,ZK rt of the subject	technologie 5 is devoted
Production systems in ele nd impregnation process  B1B13VVZ  The topic of the subject is transformers and rotation	ses will also been presented. Next part of a course will be focused on basic technologies for semiconductors including power into technologies using plasma, packaging and basic assembly technologies will also been presented.  Manufacturing of Power Devices  focused on manufacturing of power electrical machines and devices from construction and technological point of wiev. Main parting machines, namely their magnetic circuits and windings. Second half of the subject is dedicated to manufacturing of power se	Z,ZK rt of the subject	5 is devoted evices and
Production systems in elected in the impregnation process  B1B13VVZ he topic of the subject is transformers and rotation converters incless.	ses will also been presented. Next part of a course will be focused on basic technologies for semiconductors including power into technologies using plasma, packaging and basic assembly technologies will also been presented.  Manufacturing of Power Devices  focused on manufacturing of power electrical machines and devices from construction and technological point of wiev. Main paring machines, namely their magnetic circuits and windings. Second half of the subject is dedicated to manufacturing of power seluding diagnostics, reliable operation. Last part of lectures deals with layouts of manufactirung, lean management and planning of the subject is dedicated to manufacturing of power seluding diagnostics, reliable operation.	Z,ZK rt of the subject	5 is devoted evices and g.
B1B13VVZ he topic of the subject is transformers and rotatin converters incl	ses will also been presented. Next part of a course will be focused on basic technologies for semiconductors including power into technologies using plasma, packaging and basic assembly technologies will also been presented.  Manufacturing of Power Devices  focused on manufacturing of power electrical machines and devices from construction and technological point of wiev. Main parting machines, namely their magnetic circuits and windings. Second half of the subject is dedicated to manufacturing of power seluding diagnostics, reliable operation. Last part of lectures deals with layouts of manufactirung, lean management and planning of Microprocessors for Power Systems	Z,ZK rt of the subject rmiconductive diof manufacturin Z,ZK	5 is devoted evices and g.
B1B13VVZ he topic of the subject is transformers and rotatin converters included B1B14MIS Power electronics converters converted to the subject is transformers and rotatin converters included B1B14MIS	ses will also been presented. Next part of a course will be focused on basic technologies for semiconductors including power into technologies using plasma, packaging and basic assembly technologies will also been presented.  Manufacturing of Power Devices  focused on manufacturing of power electrical machines and devices from construction and technological point of wiev. Main parting machines, namely their magnetic circuits and windings. Second half of the subject is dedicated to manufacturing of power seluding diagnostics, reliable operation. Last part of lectures deals with layouts of manufactirung, lean management and planning of Microprocessors for Power Systems  Introl computer structure, digital signal processor and ALU added features for fast real time calculations. Interrupt system and DM	Z,ZK rt of the subject rmiconductive di of manufacturin Z,ZK MA system, anal	5 is devoted evices and g. 5 og signal
B1B13VVZ he topic of the subject is transformers and rotating converters included B1B14MIS Power electronics converse supplements of the subject is transformers and rotating converters included B1B14MIS Power electronics connects as the supplements of the subject is transformers.	ses will also been presented. Next part of a course will be focused on basic technologies for semiconductors including power into technologies using plasma, packaging and basic assembly technologies will also been presented.  Manufacturing of Power Devices  focused on manufacturing of power electrical machines and devices from construction and technological point of wiev. Main parting machines, namely their magnetic circuits and windings. Second half of the subject is dedicated to manufacturing of power seluding diagnostics, reliable operation. Last part of lectures deals with layouts of manufacturing, lean management and planning of Microprocessors for Power Systems  Introl computer structure, digital signal processor and ALU added features for fast real time calculations. Interrupt system and DM se signal measurement, fast impulse generation support, inter-computer communication, system and power management, program.	Z,ZK rt of the subject miconductive dof manufacturin Z,ZK MA system, anal amming language	sechnologie  5 is devoted evices and g.  5 og signal ges for power
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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	gories and
form the basis of kn	nowledge necessary for next subjects. It presents the difference among physical circuit and its models, and then it presents the behavior	r of basic ideal circ	uit 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 be	oe used for critical	assessment
	of the results of the analysis and simulation of electrical circuits by means of software tools.		
B1B34EPS	Elektronics for Heavy-current engeneering	KZ	4
Knowledge of cur	rent basic passive and active electronic components. Structure, physical and circuit properties of components. Component behavior v	when working with	both small
and large analog	, digital and optical signals. More complex circuit systems and communication technologies. Measuring the most important application	ns of modern sem	iconductor
	devices.		
B1B38EMA	Electrical Measurements	KZ	5
The subject is for	sused to fundamentals of measurement and instrumentation. Based on the principle of the methods of electrical quantities measurem	ent (voltage, curre	nt, power,
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
The purpose of the	safety course is to give the students basic knowledge of electrical equipment and installation as to avoid danger arising from operation	n of it. This introdu	ctory course
contains funda	amentals of Safety Electrical Engineering. In this way the students receive qualification of instructed person that enables them to work	on electrical equ	ipment.
BEZZ	Basic Health and Occupational Safety Regulations	Z	0
The guidelines wer	e worked out based on The Training Scheme for Health and Occupational Safety designed for employees and students of the Czech	Technical Universit	y 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 Occupati	onal 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
I VIXZ V			
TVV	Physical education	Z	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 05:28.