## Study plan

# Name of study plan: Electrical Engineering, Power Engineering and Management - Applied Electrical Engineering 2016

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: 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

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BBAP15	Bachelor 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:

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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 safe	ty course is to give the students basic knowledge of electrical equipment and installation as to avoid danger arising from opera	ation of it. This inti	oductory course
contains fundamentals	of Safety Electrical Engineering. In this way the students receive qualification of instructed person that enables them to work	on electrical equi	pment.
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 (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 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 human 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 philosophy and connection of old										
philosophical though	s with recent problems of science, technology, economics and politics.									
B0B16FI1	Philosophy 1	KZ	4							
We deal with the mo	t important persons, schools and ideas of ancient philosophy. We are concerned especially on transdisciplinary nature of philo	sophy and connec	tion of old							
philosophical though	s with recent problems of science, technology, economics and politics.		philosophical thoughts with recent problems of science, technology, economics and politics.							
B0B16HTE										
DODIGHTE	History of technology and economic	ZK	2							
B0B16HT1	History of technology and economic History of science and technology 1	ZK KZ	2 4							
			2 4 4							
B0B16HT1	History of science and technology 1	KZ	2 4 4 4							
B0B16HT1 B0B16HI1	History of science and technology 1 History 1	KZ KZ	2 4 4 4 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 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
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
B0B01KAN	Complex Analysis Zden k Mihula, Hana Tur inová Zden k Mihula 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 D This course introduces studistability, numerical solution	ne courses of this group of Study Plan: Code=2015_BEEMP Nam Differencial Equations and Numerical Analysis dents to the classical theory of ordinary differential equations (separable and linear ODEs as of algebraic and differential equations and their systems). The course takes advantage	and also to bsi	cs of nume	Z rical methods neoretical and	,ZK (errors in cal	4 culations and
The subject is focused to for frequency, resistance, capa	undamentals of measurement and instrumentation. Based on the principle of the method acitance and inductance) a structure and properties of measuring instruments are explain of magnetic measurements close the course.	=		asurement (v	oltage, currer	nt, power,

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 n	nethods (errors in	calculations and
stability, numerical solu	tions of algebraic and differential equations and their systems). The course takes advantage of the synnergy between theore	tical and practical	point of view.
B1B38EMA	Electrical Measurements	KZ	5
The subject is focused	to fundamentals of measurement and instrumentation. Based on the principle of the methods of electrical quantities measure	ement (voltage, cu	irrent, power,
frequency, resistance,	capacitance and inductance) a structure and properties of measuring instruments are explained including principles of their or	orrect application	and an accuracy
estimation. Fundament	als of magnetic measurements close the course.		
B1B31EOS	Electric circuits	Z,ZK	6
The subject describes	rundamental methods of electrical circuit analysis. The aim is to unify different level of knowledge of students coming from scl	nools of different o	categories and
form the basis of knowl	edge necessary for next subjects. It presents the difference among physical circuit and its models, and then it presents the beha	avior of basic idea	I circuit elements
	usoidal steady state as well as transients, caused by changes in the circuit. Acquired knowledge should, among other things, a	lso be used for cri	tical assessment
of the results of the an	alysis and simulation of electrical circuits by means of software tools.		
B1B15EN1	Power Engineering 1	Z,ZK	6
B1B15EN2	Power Engineering 2	Z,ZK	5
B1B17EMP	Electromagnetic Field	Z,ZK	5
This course gets its stu	idents acquinted with principles and applied electromagnetic field theory basics.		'
B1B34EPS	Elektronics for Heavy-current engeneering	KZ	4
Knowledge of current b	vasic passive and active electronic components. Structure, physical and circuit properties of components. Component behavio	r when working v	vith both small
and large analog, digital	al and optical signals. More complex circuit systems and communication technologies. Measuring the most important applicat	ions of modern se	emiconductor
devices.			
B1B02FY1	Physics 1	Z,ZK	8
The basic course of ph	ysics at the Faculty of Electrical Engineering - Physics 1, is devoted to the introduction into two important areas of physics. The	first one is a clas	ssical mechanics
and the second one is	he electric and magnetic field. Within the framework of the classical mechanics, the students study the particle kinematics; dyn.	amics of the mass	s 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 microprocessors 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 applica	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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	the subject is focused at a processing, softwardamental block of a 30B01STP he aim of the course at the matrical tools to a 31B13VST roduction systems in dimpregnation processing by the subject of the	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 of introduce students to the fundamentals of probability theory and mathematical statistics, their computational methods a practical examples.  Technology in Electrical Engineering electrical engineering will be characterized, their arrangement and basic technologies for mechanical joints and plastic particles will also been presented. Next part of a course will be focused on basic technologies for semiconductors including possesses will also been presented. Next part of a course will be focused on basic technologies for semiconductors including possesses will also been presented.  Computational Applications  Manufacturing of Power Devices  to is focused on manufacturing of power electrical machines and devices from construction and technological point of wiev. Noting machines, namely their magnetic circuits and windings. Second half of the subject is dedicated to manufacturing of power lagnostics, reliable operation. Last part of lectures deals with layouts of manufacturing, lean management and planning of mechanics, reliable operation. Last part of lectures deals with layouts of manufacturing, lean management and planning of mechanical energy to electrical and back. It discusses the principles of basic function and also discrete control, and on the characteristics of used controllers in practice. Further, the basic control structures are principles of machines and Apparatuses Basics  The principles of machines for convertsion of mechanical energy to electrical and back. It discusses the principles of basic function and machines are discussed basic devices for protection and switching, including be principles of m	th hardware for data processing in microstrial condition are processing in microstrial condition. Beautiful and processing in microstrial conditions are processing	4 a acquisition are occomputer and oresented.  5 ns of these  5 windings,dryin am technologie  4 5 ect is devoted evices and  5 ric drives logic and AC machine  5 s of rotating aring problems.
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 perchapted by the subject of the subject ansformers and rota converters including to a B1B14ZPO The course provides to control, continuous core explained. B1B14ZSP The course explains the course extends not a B1B14ZEL The course extends not basics electrotechnices The subject of the subject on the course provides to the course explained. B1B14ZEL The course extends not basics electrotechnices	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 appreciated statistics, their computational methods appreciated statistics, their computational methods appreciated appreciated statistics, their computational methods appreciated applications Industrial PC and design to industrial particular statistics, their computation industrial PC and design to indus	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		
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 students 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: 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 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
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

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: 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	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.

B0B01KAN	Complex Analysis	Z,ZK	5
1	introduction to the fundamentals of complex analysis and its applications. The basic principles of Fourier, Laplace, and Z-transform a		uding their
	applications, particularly to solving differential and difference equations.		
B0B01LAG	Linear Algebra	Z,ZK	8
The course covers	the initial parts of linear algebra. Firstly, the basic notions of a linear space and linear mappings are covered (linear dependence and inde	ependence, basis,	coordinates,
etc). The calculus	of matrices (determinants, inverse matrices, matrices of a linear map, eigenvalues and eigenvectors, diagonalisation, etc) is covered		ions include
	solving systems of linear equations, the geometry of a 3D space (including the scalar product and the vector product) and S'		
B0B01MA1	Mathematical Analysis 1	Z,ZK	7
	The aim of the course is to introduce students to basics of differential and integral calculus of functions of one variable.		
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.	Other part contain	ns function
	series and power series with application to Taylor and Fourier series.		
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 v	well as application	s of these
	mathematical tools to practical examples.		
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		_
B0B04A22	English Language A2-2	Z	0
The course is op	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	ansion; understan	nding spoken
	English.		
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	ansion; understan	nding spoken
	English.		
B0B04B1K	English language B1 - classified assessment	KZ	0
	verifying of the student's skills of B1 level		'
B0B04B21	English Language B2-1	Z	3
1	gned as a full-year, two semester preparation course for the universitys compulsory B2-level English Examination (Anglický jazyk B2 -	zkouška - B0B04	B2Z*). While
	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	ite level of English	for Erasmus
	/ International Study.		
B0B04B22	English Language B2-2	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 - B0B04F	B2Z *). While
the course is foci	used 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 m	ore on the
academic and tech	nical vocabulary and grammar expected of students at the university level. *NOTE: This exam is also used for determining an appropria	ite level of English	for Erasmus
	/ International Study.		
B0B04B2Z	English language B2 - exam	Z,ZK	0
I) The B2 English E	xam is a compulsory subject for all Faculty of Electrical Engineering students at the Czech Technical University. According to the Stud	dy and Examination	n Rules and
Regulations for Stu	idents at CTU (Part III, Article 4), a compulsory subject is one whose completion is a necessary condition in order to successfully com	plete the study pr	ogramme. In
	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	•	
1 0 0 1	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 specialisat		- 1
	ntaneity that makes regular interaction with native speakers quite possible without strain for either party. Can produce clear, detailed to		
	wpoint on a topical issue giving the advantages and disadvantages of various options. III) Students who have successfully passed an		
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 boti	n the written
DODAGETA	Test and the Oral Part. For a list of approved international exams go the department website: http://jazyky.fel.cvut.cz/	1/7	
B0B16ET1	Ethic 1	KZ	4
1	is to provide the students an orientation not only in general problems of ethics but above all to offer instructions for solving various situ		
-	f the subject are discussions in which students can react to lectures but also to actual questions coming with news and look for the co		
B0B16FI1	Philosophy 1	KZ	4
vve deal with the	e most important persons, schools and ideas of ancient philosophy. We are concerned especially on transdisciplinary nature of philosophy.	opny and connect	nou of old
Don to Til	philosophical thoughts with recent problems of science, technology, economics and politics.	717	
B0B16FIL	Philosophy	ZK	2
vve deal with the	e most important persons, schools and ideas of ancient philosophy. We are concerned especially on transdisciplinary nature of philosophical thoughts with recent problems of acience, technology, accomplise and politics.	opny and connect	tion of old
Donasius	philosophical thoughts with recent problems of science, technology, economics and politics.	177	
B0B16HI1	History 1	KZ	4
B0B16HT1	History of science and technology 1	KZ	4
B0B16HTE	History of technology and economic	ZK	2
B0B16MME	Macro and Microekonomics	Z,ZK	4
Basic economic ter	ms, market, law of demand, law of supply, market equilibrium, price regulation, price and income elasticities, consumer's behavior, prod	ucer's behavior, co	ost, revenue,
profit, market faile	ure, monopoly, government macroeconomic policy, gross domestic product, multipliers, money, inflation, banking system, monetary p	olicy, labor market	t, business
	cycle, fiscal policy, foreign trade policy, comparative advantage, CR and EU, Euro.		
B0B16MPL	Psychology for managers	ZK	2
B0B16MPS	Psychology	Z,ZK	4
B0B99PRP	Procedural Programming	z,zK	6
B1B02FY1	Physics 1	Z,ZK	8
1	FTIYSICS   If physics at the Faculty of Electrical Engineering - Physics 1, is devoted to the introduction into two important areas of physics. The fire		
	e is the electric and magnetic field. Within the framework of the classical mechanics, the students study the particle kinematics; dynamic		
	and rigid bodies. The students should be able to solve basic problems dealing with the description of mechanical systems, which they	•	
1	cal mechanics is followed by the relativistic mechanics, electric and magnetic field - both stationary as well as non-stationary. The students	_	

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. B1B02FY2 Physics 2 Z.ZK 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 - 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 a universal character in spite of the waves character. Particular types of waves, such as acoustic or optical waves are the subjects of the following section. Quantum mechanics and nuclear 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. B1B13MVE Materials for Power Electrical Engineering At first a physical description of basic properties and basic types of materials for electrical engineering is carried out. Types of conductors, superconductors, insulators, magnetic materials and semiconductors, which are used in power electrical engineering, are presented. The stress is put on relationships between properties, technology and the use. The student will meet, in higher detail, with ceramics for electrical engineering, with properties of mica, glass and their applications, with environmental conductive joining, with materials for thin and thick films and with selected nanomaterials and their applications. B1B13PPS Industrial computer systems Z,ZK 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. B1B13PTE Advanced technology in electrical engineering 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 B1B13SEZ Electrochemical Sources and Photovoltaics 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. B1B13VST Technology in Electrical Engineering Production systems in electrical engineering will be characterized, their arrangement and basic technologies for mechanical joints and plastic parts. Manufacturing of windings drying and impregnation processes will also been presented. Next part of a course will be focused on basic technologies for semiconductors including power integration. Beam technologies technologies using plasma, packaging and basic assembly technologies will also been presented. B1B13VVZ Manufacturing of Power Devices 5 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 B1B14MIS Microprocessors for Power Systems Z.ZK 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 B1B14TME Engineering mechanics 7.7K 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. B1B14ZEL Fundamentals of Electrotechnical Engineering K7 3 The course extends necessary knowledge of the technical documentation, technical text and its presentation. The second half of the semester isfocused on an explanation and practicing of basics electrotechnics so that knowledge of students are increased to the level needed in the next semesters. 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 structures of drives with DC and AC machines are explained. Electric Machines and Apparatuses Basics The course explains the principles of machines for convertsion of mechanical energy to electrical and back. It discusses the principles of basic functions and properties of rotating and non-rotating electric machines. Following the behavior of electrical machines are discussed basic devices for protection and switching, including behavioral and switching problems. B1B147VF Power Electronics 7.7K 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. B1B15EN1 Power Engineering 1 Z,ZK 6 B1B15EN2 Power Engineering 2 Z,ZK 5 B1B15EN3 Power Engineering 3 ΚZ 4 B1B15EPR Projects in Power Engineering ΚZ 4 4 B1B15VYA ΚZ Computational Applications B1B17EMP Electromagnetic Field Z.ZK 5 This course gets its students acquinted with principles and applied electromagnetic field theory basics. B1B31EOS Z.ZK Electric circuits 6 The subject describes fundamental methods of electrical circuit analysis. The aim is to unify different level of knowledge of students coming from schools of different categories and 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.

B1B34EPS	Elektronics for Heavy-current engeneering	KZ	4
Knowledge of curi	ent 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	niconductor
devices.			
B1B38EMA	Electrical Measurements	KZ	5
The subject is foo	used to fundamentals of measurement and instrumentation. Based on the principle of the methods of electrical quantities measurem	ent (voltage, curr	ent, 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 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 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
TVV	Physical education	Z	0
TVV0	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 2025-07-19, time 23:56.