Study plan

Name of study plan: Open Electronic Systems

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: Open Electronic Systems
Type of study: Bachelor full-time
Required credits: 180
Elective courses credits: 0
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: 87
The role of the block: P

Code of the group: 2020_BOESBAP
Name of the group: Bachelor Thesis
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 at least 1 course (at most 0)
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	P

Characteristics of the courses of this group of Study Plan: Code=2020_BOESBAP Name=Bachelor Thesis

BBAP15	Bachelor thesis	Z	15

Code of the group: 2020_BOESBBE
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 Havlíček, Vladimír Kůla **Radek Havlíček** Vladimír Kůla (Gar.)*	Z	0	2BP+2BC	Z,L	P
BEZZ	**Basic Health and Occupational Safety Regulations** *Ivana Nová, Radek Havlíček, Vladimír Kůla **Radek Havlíček** Vladimír Kůla (Gar.)*	Z	0	2BP+2BC	Z	P

Characteristics of the courses of this group of Study Plan: Code=2020_BOESBBE 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: 2020_BOESP

Name of the group: Compulsory subjects of the programme
Requirement credits in the group: In this group you have to gain 72 credits
Requirement courses in the group: In this group you have to complete at least 12 courses
Credits in the group: 72
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
A8B14ADP	**Algorithm Development and Programming** *Radek Havlíček, Stanislav Vítek, Jiří Zděnek* ***Stanislav Vítek*** *Stanislav Vítek (Gar.)*	Z,ZK	5	2P+2C	Z	P
B0B01DRN	**Differential Equations and Numerical Analysis** *Petr Habala, Jakub Rondoš, Jakub Staněk, Daniel Gromada, Josef Dvořák* ***Petr Habala*** *Petr Habala (Gar.)*	Z,ZK	4	2P+2C	L	P
A8B01DMG	**Discrete Math.& Graphs** *Marie Demlová* ***Marie Demlová*** *Marie Demlová (Gar.)*	Z,ZK	5	3P+1S	Z	P
B2B02FY1	**Physics 1** *Petr Kulhánek, Petr Koníček* ***Petr Kulhánek*** *Petr Kulhánek (Gar.)*	Z,ZK	8	4P+1L+2C	L	P
B2B02FY2	**Physics 2** *Petr Kulhánek, Petr Koníček* ***Petr Kulhánek*** *Petr Kulhánek (Gar.)*	Z,ZK	7	3P+1L+2C	Z	P
A8B01LAG	**Linear Algebra** *Jakub Rondoš, Jiří Velebil* ***Jiří Velebil*** *Jiří Velebil (Gar.)*	Z,ZK	7	4P+2S	Z	P
A8B01MC1	**Mathematics-Calculus1** *Martin Křepela, Josef Tkadlec* ***Josef Tkadlec*** *Josef Tkadlec (Gar.)*	Z,ZK	7	4P+2S	Z	P
A8B01MCT	**Mathematics-Complex Variable and Integral Transforms** *Martin Bohata, Hana Turčinová* ***Martin Bohata*** *Martin Bohata (Gar.)*	Z,ZK	7	4P+2S	Z	P
A8B01MCM	**Mathematics-Calculus m-D** *Martin Bohata, Jaroslav Tišer* ***Martin Bohata*** *Jaroslav Tišer (Gar.)*	Z,ZK	7	4P+2S	L	P
A8B01AMA	**Advanced Matrix Analysis** *Martin Křepela* ***Jiří Velebil*** *Jiří Velebil (Gar.)*	Z,ZK	4	3P+1S	L	P
A8B01OGT	**Optimization and Game Theory** *Martin Bohata* ***Martin Bohata*** *Martin Bohata (Gar.)*	Z,ZK	4	3P+1S	L	P
B0B01PST	**Probability and Statistics** *Kateřina Helisová* ***Kateřina Helisová*** *Petr Hájek (Gar.)*	Z,ZK	7	4P+2S	Z	P

Characteristics of the courses of this group of Study Plan: Code=2020_BOESP Name=Compulsory subjects of the programme

A8B14ADP	Algorithm Development and Programming	Z,ZK	5
Course objective: Introduction to algorithm design of basic and more advanced computer tasks, Digital computer structure, Introduction to the C programming language, Syntax and semantics. Basic skills of procedural programming paradigm, variable, data type, declaration, operators, expressions, statements, functions, parameter passing, arrays, pointers, structures, compilation and debugging methods, preprocessor, conditional compilation, standard libraries, specific of embedded computer systems programming and debugging.			
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.			
A8B01DMG	Discrete Math.& Graphs	Z,ZK	5
The course introduces basic notions from discrete mathematics directed to those topics useful for electrical engineering studies. The content of the course covers: infinite sets with emphasis to cardianlity of sets, binary relations with emphasis to equivalence relations and partial ordes'; integers, relation modulo n'; basic algebraic structures (includin finite fields of characteristic 2). Furher the course contains basic notions and their applications from graph theory.			
B2B02FY1	Physics 1	Z,ZK	8
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.			
B2B02FY2	Physics 2	Z,ZK	7
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.			
A8B01LAG	Linear Algebra	Z,ZK	7
This course covers introductory topics of linear algebra. The main focus is on the related notions of linear spaces and linear transformations (linear independence, bases and coordinates) and matrices (determinants, inverse matrix, matrix of a linear mapping, eigenvalues). Applications include solving systems of linear equations, geometry in n-space (including dot product and cross product).			
A8B01MC1	Mathematics-Calculus1	Z,ZK	7
The aim of the course is to introduce students to basics of differential and integral calculus of functions of one variable.			
A8B01MCT	Mathematics-Complex Variable and Integral Transforms	Z,ZK	7
A8B01MCM	Mathematics-Calculus m-D	Z,ZK	7
The 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 series and power series with application to Taylor and Fourier series.			
A8B01AMA	Advanced Matrix Analysis	Z,ZK	4
The course covers advanced topics of linear algebra, in particular matrix factorizations and construction of matrix functions.			

A8B01OGT	Optimization and Game Theory	Z,ZK	4
B0B01PST	Probability and Statistics	Z,ZK	7

Code of the group: 2020_BOESZAJ
Name of the group: Exam from the english language
Requirement credits in the group:
Requirement courses in the group: In this group you have to complete at least 1 course
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
B0B04B2Z	**English language B2 - exam** *Markéta Havlíčková, Dana Saláková, Petra Juna Jennings, Michael Ynsua* ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z,ZK	0	0C	Z,L	P

Characteristics of the courses of this group of Study Plan: Code=2020_BOESZAJ Name=Exam from the english language

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 to the department website: http://jazyky.fel.cvut.cz/

Name of the block: Compulsory courses of the specialization
Minimal number of credits of the block: 85
The role of the block: PO

Code of the group: 2020_BOESPO
Name of the group: Compulsory subjects of the branch
Requirement credits in the group: In this group you have to gain 85 credits
Requirement courses in the group: In this group you have to complete at least 17 courses
Credits in the group: 85
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
A8B31AAC	**Analog and Active Circuits** *Jiří Hospodka* ***Jiří Hospodka*** *Jiří Hospodka (Gar.)*	Z,ZK	6	3P+2S	Z	PO
A8B37DCMA	**Digital Communications** *Jan Sýkora* ***Jan Sýkora*** *Jan Sýkora (Gar.)*	Z,ZK	6	3P+1C	Z	PO
A8B37DIT	**Digital Design** *Petr Skalický* ***Stanislav Vítek*** *Stanislav Vítek (Gar.)*	Z,ZK	5	2P+2C	L	PO
A8B32DSP	**Digital Signal Processing** *Pavel Zahradník, Boris Šimák* ***Boris Šimák*** *Pavel Zahradník (Gar.)*	Z,ZK	5	3P + 1L	Z	PO
A8B17EFC	**Electrical Field and Circuits** *Zbyněk Škvor, Radoslav Bortel* ***Zbyněk Škvor*** *Zbyněk Škvor (Gar.)*	KZ	4	2P+1S	L	PO
A8B17ELD	**Electrodynamics** *Zbyněk Škvor, Lukáš Jelínek* ***Lukáš Jelínek*** *Lukáš Jelínek (Gar.)*	Z,ZK	5	3P+1S	L	PO
A8B38EME	**Electronic Measurements** *Jan Holub, Jakub Svatoš* ***Jakub Svatoš*** *Jan Holub (Gar.)*	KZ	4	2P+1L	L	PO
A8B34EOD	**Electronic and Optoelectronic Devices** *Pavel Hazdra* ***Pavel Hazdra*** *Pavel Hazdra (Gar.)*	Z,ZK	6	3P+2L	Z	PO
A8B34SST	**Solid State Physics** *Jan Voves* ***Jan Voves*** *Jan Voves (Gar.)*	Z,ZK	4	3P+1C	L	PO
A8B17CAS	**Computer Algebra Systems (CAS)** *Miloslav Čapek* ***Miloslav Čapek*** *Miloslav Čapek (Gar.)*	Z	2	1P+1C	Z	PO
A8BPROJ2	**Project** *Lubor Jirásek, Pavel Máša, Ivan Pravda, František Rund, Jan Šístek*	Z	2	0P+2S	Z,L	PO
A8B37SAS	**Signals and Systems** *Jan Sýkora, Pavel Puričer, Karel Fliegel* ***Karel Fliegel*** *Jan Sýkora (Gar.)*	Z,ZK	8	4P+2C	L	PO

A8B32DNT	**Data Networks Theory** *Leoš Boháč, Zdeněk Bečvář, Pavel Mach, Mostafa Kishanifarahani* ***Zdeněk Bečvář*** *Zdeněk Bečvář (Gar.)*	Z,ZK	5	3P + 1L	Z	PO
A8B17EMTA	**Electromagnetic Field Theory** *Zbyněk Škvor, Lukáš Jelínek* ***Lukáš Jelínek*** *Lukáš Jelínek (Gar.)*	Z,ZK	7	4P+2S	Z	PO
A8B31CIR	**Circuit Theory** *Jiří Hospodka* ***Ivan Zemánek*** *Ivan Zemánek (Gar.)*	Z,ZK	8	4P+2S	L	PO
A8B32IES	**Introduction to Electronic Systems** *Stanislav Vítek, Jiří Hospodka, Jan Sýkora, Pavel Zahradník, Zbyněk Škvor, Pavel Hazdra* ***Zbyněk Škvor*** *Zbyněk Škvor (Gar.)*	Z	2	0P + 2L	Z	PO
A8B37SSP	**Statistical Signal Processing** *Jan Sýkora, Pavel Sovka* ***Jan Sýkora*** *Jan Sýkora (Gar.)*	Z,ZK	6	4P+0C	L	PO

Characteristics of the courses of this group of Study Plan: Code=2020_BOESPO Name=Compulsory subjects of the branch

A8B31AAC	Analog and Active Circuits	Z,ZK	6
The subject AE8B31AAC is oriented on presentation, matematical description, analysis and sythesis of basic analogue active circuits and function blocks of electronic systems based on basic semiconductor electronic components operating in linear and non-linear modes.			
A8B37DCMA	Digital Communications	Z,ZK	6
The course provides fundamentals of digital communications theory: modulation, classical coding, channel models, and basic principles of decoding. The exposition is systematically built along the theoretical lines which allow to reveal all inner connections and principles. This allows students to develop the knowledge and use it in an active way in a design and construction of the communication systems. The course provides a necessary fundamental background for subsequent more advanced communications theory courses.			
A8B37DIT	Digital Design	Z,ZK	5
The goal of this course is to introduce the philosophy of digital circuits' design, to provide formal description of combinational and sequential logical circuits, their functional blocks. Both mathematical and functional description, as well as minimization algorithms for output and transient functions of digital components and circuits is presented. Karnaugh maps, latch elements, finite-state Mealy and Moore machines are the essential part of the content. The subject matter discussed will be tested on the typical design of digital circuits.			
A8B32DSP	Digital Signal Processing	Z,ZK	5
This subject is focused upon basics in the digital signal processing, systems and methods for digital signal processing.			
A8B17EFC	Electrical Field and Circuits	KZ	4
A8B17ELD	Electrodynamics	Z,ZK	5
The course AEB17ELD (electrodynamics) is a follow up of the course AEB17EMTA (Electromagnetic field theory). The course starts with a decomposition of electromagnetic field into planewaves, introduces radiation of waves and guides student through the interaction of electromagnetic waves with material boundaries. The theory of wave guides and transmission lines is also shown. The course ends with wave scattering. The knowledge gained in this course is needed for number of specialized master courses.			
A8B38EME	Electronic Measurements	KZ	4
The course is focused to metrology fundamentals and uncertainty apparatus. It explains both elementary principles and selected advanced methods used in electronics, telecommunications and radio communications.			
A8B34EOD	Electronic and Optoelectronic Devices	Z,ZK	6
This course introduces the basic theory, principles of operation and properties of electronic and optoelectronic devices. Physical principles of operation, device structures and characteristics are explained together with adequate models for small- and large-signal. Basic applications in analogue and digital electronics are examined. In seminars and labs, students are introduced to basic principles of device simulation, measurement of device characteristics and extraction of device parameters. Operation of electron devices in electronic systems is then analyzed using the PSpice simulator.			
A8B34SST	Solid State Physics	Z,ZK	4
The subject is aimed on solid state physics including some parts of statistical physics. The subject informs about basic properties of materials used in electronics, esp. about semiconductors.			
A8B17CAS	Computer Algebra Systems (CAS)	Z	2
A8BPROJ2	Project	Z	2
A8B37SAS	Signals and Systems	Z,ZK	8
Continuous and discrete time signal representation in time and frequency domain. Stochastic signals and their parameters. Elementary principles of analog modulations with their noise conditions. Fundamental course for further study focusing on communication, measurement and signal processing.			
A8B32DNT	Data Networks Theory	Z,ZK	5
A8B17EMTA	Electromagnetic Field Theory	Z,ZK	7
Students get acquainted with physics fundaments of the electromagnetic theory and with its mathematical description. Particularly, the course guides student through electrostatics, magnetostatics, introduces coupling between time varying fields and it is ends with an introduction to an electromagnetic wave. The knowledge gained in this course are needed for the subsequent course AE8B17ELD (Electrodynamics), for the course of circuit theory, theory of semiconductors and a number of specialized master courses.			
A8B31CIR	Circuit Theory	Z,ZK	8
The subject AE8B31CIR is a complet systematic presentation of electrical circuit theory. It is based on general physical nature of electromagnetic effects, an electric circuit is presented as a special quasistationary case of electromagnetic field. It defines basic circuit quantities (voltage, current) and basic circuit elements modeling all kinds of actual energy interactions. The subject is specifically oriented on linear electrical circuit (analogue LTI systems), it presents basic priciples and theorems of circuit theory, and analysis methods of linear circuits working in steady and transient states (modes), respectively. The time domain and frequency domain analysis is strictly differentiated. "System? characterization is applied on circuit transfer properties analysis, stability analysis, and feedback theory. At the end the subject deals with basis of discrete LTI systems theory.			
A8B32IES	Introduction to Electronic Systems	Z	2
This is a motivation subject with syllabus composed of a set of demonstrations and measurements. Its content is divided into several themes. Students have a choice from this offer based on their pre-knowledge. The goal is to complete the missing knowledge and skills which may vary in students comming from various schools. The next goal is to get an idea about the scope of the OES programme.			
A8B37SSP	Statistical Signal Processing	Z,ZK	6
The course provides fundamentals in three main domains of the statistical signal processing: 1) estimation theory, 2) detection theory, 3) optimal and adaptive filtering. The statistical signal processing is a core theory with many applications ranging from digital communications, audio and video processing, radar and radio navigation, measurement and experiment evaluation, etc.			

Name of the block: Elective courses
Minimal number of credits of the block: 8
The role of the block: V

Code of the group: 2020_BOESHEM
Name of the group: Humanities, economically-management subjects
Requirement credits in the group: In this group you have to gain at least 8 credits (at most 139)
Requirement courses in the group:
Credits in the group: 8
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
BE9M04AKP	**Academic Writing** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	KZ	2	2C	L	v
B3B04PSA	**Academic Writing** *Petra Juna Jennings, Jitka Pinková* ***Jitka Pinková*** *Petra Juna Jennings (Gar.)*	KZ	2	2C	Z	v
A0B04GA	***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	Z,L	v
A0B04KA	**English Conversation 2** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	Z,L	v
A0B04KA2	**English Conversation 2** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	Z,L	v
A0B04OA	**Technical English Course** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	Z,L	v
A0B04C2Z	**Czech language 2** ***Jitka Pinková*** *Petra Juna Jennings (Gar.)*	Z	2	2C	Z	v
A0B04C2L	**Czech language 2** ***Jitka Pinková*** *Petra Juna Jennings (Gar.)*	Z	2	2C	L	v
A0B04CIN	***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	*	v
A0B04CIN2	**Chinese Language 2** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	Z,L	v
A0B16EPD	**Business economics**	KZ	4	2+2s	Z,L	v
B0B16ET1	**Ethic 1** *Vladimír Slámečka* ***Vladimír Slámečka*** *Vladimír Slámečka (Gar.)*	KZ	4	2P+2C	Z	v
B0B16FIL	**Philosophy** *Peter Zamarovský* ***Peter Zamarovský*** *Peter Zamarovský (Gar.)*	ZK	2	2P+0S	Z,L	v
B0B16FI1	**Philosophy 1** *Peter Zamarovský* ***Peter Zamarovský*** *Peter Zamarovský (Gar.)*	KZ	4	2P+2S	Z	v
A0B04KF1	**French conversation 1** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	*	v
A0B04KF2	**French conversation 1** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	*	v
A0B04F1	**French language 1** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	*	v
A0B04F2	**French language 2** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	*	v
A0B04F3	**French Language 3** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	*	v
B0B39GRT	**Graphical Design** *Lucie Svobodová* ***Lucie Svobodová*** *Lucie Svobodová (Gar.)*	KZ	5	2P+2S	Z,L	v
B0B16HTE	**History of technology and economic** *Marcela Efmertová, Jan Mikeš* ***Marcela Efmertová*** *Marcela Efmertová (Gar.)*	ZK	2	2P+0S	Z,L	v
B0B16HT1	**History of science and technology 1** *Marcela Efmertová, Jan Mikeš* ***Marcela Efmertová*** *Marcela Efmertová (Gar.)*	KZ	4	2P+2S	Z	v
B0B16HI1	**History 1** *Milena Josefovičová* ***Milena Josefovičová*** *Milena Josefovičová (Gar.)*	KZ	4	2P+2S	Z	v
A0B04JAP	**Japanese** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	*	v
A0B04JAP2	**Japanese 2** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	*	v
A1B16MME	**Macro and Microeconomics**	Z,ZK	5	2+2s	Z	v
B0B16MPS	**Psychology** *Jan Fiala* ***Jan Fiala*** *Jan Fiala (Gar.)*	Z,ZK	4	2P+2S	Z,L	v
A0B04GN	**German Grammar** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	Z,L	v
A0B04KN	**German Conversation** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	Z,L	v
A0B04KN2	**German conversation 2** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	*	v
A0B04N1	**German language 1** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	*	v
A0B04N2	**German language 2** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	*	v

A0B04N3	**German language 3** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	*	v
A0B04ON	**Professional German** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	Z,L	v
BE9M04PRE	**Presentation Skills** *Petra Juna Jennings, Erik Peter Stadnik* ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	KZ	2	2C	Z	v
B6B04PRE	**Presentation** *Petra Juna Jennings, Jitka Pinková* ***Jitka Pinková*** *Petra Juna Jennings (Gar.)*	KZ	3	1P+1C	Z	v
A0B16PRS	**Presentation skills**	Z	2	2s	Z,L	v
A0B04CAE1	**Certificate of Advanced English CAE 1** ***Petra Juna Jennings*** *Pavla Péterová (Gar.)*	Z	2	2C	Z,L	v
A0B04CAE2	**Certificate of Advanced English CAE 2** ***Pavla Péterová*** *Petra Juna Jennings (Gar.)*	Z	2	2C	Z,L	v
A0B04CAE3	**Certificate of Advanced English CAE 3** *Petra Juna Jennings, Pavla Péterová* ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	Z,L	v
A0B04FCE1	**FCE 1** ***Petra Juna Jennings***	Z	2	2C	*	v
A0B04FCE2	**FCE 2** ***Petra Juna Jennings***	Z	2	2C	*	v
A0B04FCE4	**FCE4** ***Dana Saláková***	Z	2	2C	Z,L	v
A0B04FCE3	**FCE 3** ***Petra Juna Jennings***	Z	2	2C	Z,L	v
A0B04PZP	**Preparation for stay in Germany** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	*	v
B0B16MPL	**Psychology for managers** *Jan Fiala* ***Jan Fiala*** *Jan Fiala (Gar.)*	ZK	2	2P+0S	Z,L	v
A0B04RET	**Rhetoric** ***Jitka Pinková*** *Petra Juna Jennings (Gar.)*	Z	2	2C	Z,L	v
A0B04KR2	**Russian conversation 2** ***Dana Saláková***	Z	2	2C	*	v
A0B04R1	**Russian language 1** ***Jitka Pinková*** *Petra Juna Jennings (Gar.)*	Z	2	2C	*	v
A0B04R2	**Russian language 2** ***Jitka Pinková*** *Petra Juna Jennings (Gar.)*	Z	2	2C	*	v
A0B04R3	**Russian language 3** ***Jitka Pinková***	Z	2	2C	*	v
A0B04R4	**Russian language 3** ***Dana Saláková***	Z	2	2C	*	v
A0B04KS1	**Spanish conversation 1** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	*	v
A0B04KS2	**Spanish conversation 2** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	*	v
A0B04S1	**Spanish language 1** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	*	v
A0B04S2	**Spanish language 2** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	*	v
A0B04S3	**Spanish language 3** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	*	v
A0B04S4	**Spanish Language 4** ***Petra Juna Jennings*** *Petra Juna Jennings (Gar.)*	Z	2	2C	*	v
A0B04CA	**Technical English for Pre-Intermediate** ***Dana Saláková***	Z	2	2C	L	v
A003TV	**Physical Education** ***Jiří Drnek***	Z	2	0+2	L,Z	v

Characteristics of the courses of this group of Study Plan: Code=2020_BOESHEM Name=Humanities, economically-management subjects

BE9M04AKP	Academic Writing	KZ	2

ACADEMIC WRITING COURSE (BE9M04AKP) Objective(s): The overall aim of this course is not to increase the student's level of English, but to improve the student's skills and abilities of writing academically (in English). This course is not simply an opportunity for students who have registered to have someone (the instructor) simply proofread and correct their texts - the ultimate goal of the course will be that the student is able to write (better) in English at an academic level. If a student's level of English is not up to the expected level of this course (B2 Upper-Intermediate), it is the student's responsibility to take action to improve it (outside of this course). It is hoped that by working and writing in English on a regular basis throughout this course that participants will, naturally, improve their level of English in one way or another.

B3B04PSA	Academic Writing	KZ	2

Practically focused course in which students learn how or improve their ability to correctly and effectively formulate common written documents such as their own notes, research, reports, protocols, articles, etc. Students will be acquainted with the main principles of writing professional texts.

A0B04GA		Z	2

The aim of this course is to extend and complement grammatical patterns covered in other English courses that are intended for full-time students. The course is meant mainly as a supplement for students who have not yet passed the B2 examination and are interested in further study and additional practice.

A0B04KA	English Conversation 2	Z	2

The course is designed for students who want to develop their communication skills. Students will be given the opportunity to use the vocabulary they already know, as well as learn new words and phrases, to communicate on a variety of topics and themes. This course is not designed for beginners.

A0B04KA2	English Conversation 2	Z	2
The course is designed for students who want to develop their communication skills. Students will be given the opportunity to use the vocabulary they already know, as well as learn new words and phrases, to communicate on a variety of topics and themes. The course is generally designed as a follow-up to the Conversation One course, building on the skills presented there; however, attending Conversation One is not a pre-requisite. This course is not designed for beginners.			
A0B04OA	Technical English Course	Z	2
This course is designed for students who have successfully passed the B2 Exam or have met the exam requirement. Its main objective is to prepare students to be able to communicate about technical subject matter in English in a variety of formats. This will be practiced by examining the structure and style of writing in formal English and practicing via 3 different types of texts: an abstract, a short explanatory article, and a research article.			
A0B04C2Z	Czech language 2	Z	2
The course is aimed at foreign students studying in Czech, it further develops their language knowledge and skills to meet the needs of technical university students			
A0B04C2L	Czech language 2	Z	2
The course is aimed at foreign students studying in Czech, it further develops their language knowledge and skills to meet the needs of technical university students.			
A0B04CIN		Z	2
A0B04CIN2	Chinese Language 2	Z	2
A0B16EPD	Business economics	KZ	4
Basic course of Business Economics deals with the subject from wide angle of view, discussing all particular aspects of Business Economics (see list of topics below), and relationships between them. Aim of the course is to show Business Economics in its complexity. The course is focused on more practical questions than a plain theory. General conclusions of each sub-topic follow concrete practical examples. Own business plan is prepared by each student as a semestra project. The business plan plays a key role for exam result of each student.			
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 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 philosophy and connection of old philosophical thoughts with recent problems of science, technology, economics and politics.			
A0B04KF1	French conversation 1	Z	2
A0B04KF2	French conversation 1	Z	2
A0B04F1	French language 1	Z	2
A0B04F2	French language 2	Z	2
A0B04F3	French Language 3	Z	2
B0B39GRT	Graphical Design	KZ	5
The course grants an overview of graphical design and typography. It includes also a practical training in creating graphical design of electronical documents and hand drawing.			
B0B16HTE	History of technology and economic	ZK	2
B0B16HT1	History of science and technology 1	KZ	4
B0B16HI1	History 1	KZ	4
A0B04JAP	Japanese	Z	2
A0B04JAP2	Japanese 2	Z	2
A1B16MME	Macro and Microeconomics	Z,ZK	5
Basic economic terms, market, law of demand, law of supply, market equilibrium, price regulation, price and income elasticities, consumer's behavior, producer's behavior, cost, revenue, profit, market failure, monopoly, government macroeconomic policy, gross domestic product, multipliers, money, inflation, banking system, monetary policy, labor market, business cycle, fiscal policy, foreign trade policy, comparative advantage, CR and EU, Euro.			
B0B16MPS	Psychology	Z,ZK	4
A0B04GN	German Grammar	Z	2
A0B04KN	German Conversation	Z	2
A0B04KN2	German conversation 2	Z	2
A0B04N1	German language 1	Z	2
A0B04N2	German language 2	Z	2
A0B04N3	German language 3	Z	2
A0B04ON	Professional German	Z	2
BE9M04PRE	Presentation Skills	KZ	2
The overall aim of this course is to develop communication and language skills in order to plan and deliver an effective presentation. Students will be taken systematically through the key stages of giving presentations, from planning and introducing to concluding. Students are guided, using interactive methods, to communicate their thoughts and ideas in a logical and structured order - and in as brief or succinct a way as possible. Emphasis is placed on independent, critical thinking and the correct formulation of presenting ideas; throughout this course students will practice skills that will enable them to become better speakers and presenters.			
B6B04PRE	Presentation	KZ	3
A0B16PRS	Presentation skills	Z	2
Students will learn to prepare and to do presentation. They will obtain skills how to prepare written documents using typographic principles and proper way of citation and referencing. They will prove gained theoretical knowledge on self prepared interactive presentation that is recorded on video and discussed.			
A0B04CAE1	Certificate of Advanced English CAE 1	Z	2
The aim of the course is to prepare for Certificate of Advanced English - the second highest level Cambridge ESOL exam. The course CAE1 covers units 1-4. Studying for CAE helps you to improve your language skills (reading, writing, English in use, listening and speaking) and use them in a wide range of contexts. The exam is based on realistic tasks and indicates the ability to use the language in practical situations. You will be able to participate in meetings and discussions, expressing opinions clearly and be able to understand and produce texts of various types. CAE is recognised by the majority of universities in English speaking countries as proof of adequate language skills for courses taught and assessed in English as well as by employers who require knowledge of a foreign language. CAE is taken by more than 60 000 people each year in more than 60 countries. It is possible but not necessary for obtaining credit to take CAE at British Council.			

A0B04CAE2	Certificate of Advanced English CAE 2	Z	2
The aim of the course is to prepare for Certificate of Advanced English - the second highest level Cambridge ESOL exam. The course CAE2 covers units 5-8. Studying for CAE helps you to improve your language skills (reading, writing, English in use, listening and speaking) and use them in a wide range of contexts. The exam is based on realistic tasks and indicates the ability to use the language in practical situations. You will be able to participate in meetings and discussions, expressing opinions clearly and be able to understand and produce texts of various types. CAE is recognised by the majority of universities in English speaking countries as proof of adequate language skills for courses taught and assessed in English as well as by employers who require knowledge of a foreign language. CAE is taken by more than 60 000 people each year in more than 60 countries. It is possible but not necessary for obtaining credit to take CAE at British Council. Student is allowed to enrol only into one CAE course during one semester.			
A0B04CAE3	Certificate of Advanced English CAE 3	Z	2
The aim of the course is to prepare for Certificate of Advanced English - the second highest level Cambridge ESOL exam. The course CAE3 covers unit 9 - 12. Studying for CAE helps you to improve your language skills (reading, writing English in use, listening and speaking) and use them in a wide range of contexts.			
A0B04FCE1	FCE 1	Z	2
The course is aimed for students, employees of the Faculty and the public whose knowledge of English corresponds to B1 level according to the European Language Frame. The course focuses on improving all language skills - writing, speaking, reading, listening, grammar and phonetics - and is submitted to the goal of obtaining the required skills needed for B2 ELF.			
A0B04FCE2	FCE 2	Z	2
The course is aimed for students, employees of the Faculty and the public whose knowledge of English corresponds to B1 level according to the European Language Frame. The course focuses on improving all language skills - writing, speaking, reading, listening, grammar and phonetics - and is submitted to the goal of obtaining the required skills needed for B2 ELF.			
A0B04FCE4	FCE4	Z	2
The course is aimed for students, employees of the Faculty and the public whose knowledge of English corresponds to B1 level according to the European Language Frame. The course focuses on improving all language skills - writing, speaking, reading, listening, grammar and phonetics - and is submitted to the goal of obtaining the required skills needed for B2 ELF.			
A0B04FCE3	FCE 3	Z	2
The course is aimed for students, employees of the Faculty and the public whose knowledge of English corresponds to B1 level according to the Common European Framework of Reference for Languages (CEFR). The course focuses on improving all language skills - writing, speaking, reading, listening, grammar and phonetics - and is submitted to the goal of obtaining the required skills needed for B2 CEFR.			
A0B04PZP	Preparation for stay in Germany	Z	2
B0B16MPL	Psychology for managers	ZK	2
A0B04RET	Rhetoric	Z	2
The objective of the subject is to master and improve skills necessary for successful presentation as well as enhancing the communicative ability of the prospective engineers and bachelors. This subject will enable the students to develop both spoken and written presentations, non verbal communication and remove the psychological barriers for public speaking so that the students can create a good image. The course "Retorika" provides an introduction to this subject.			
A0B04KR2	Russian conversation 2	Z	2
A0B04R1	Russian language 1	Z	2
A0B04R2	Russian language 2	Z	2
A0B04R3	Russian language 3	Z	2
A0B04R4	Russian language 3	Z	2
A0B04KS1	Spanish conversation 1	Z	2
A0B04KS2	Spanish conversation 2	Z	2
A0B04S1	Spanish language 1	Z	2
A0B04S2	Spanish language 2	Z	2
A0B04S3	Spanish language 3	Z	2
A0B04S4	Spanish Language 4	Z	2
A0B04CA	Technical English for Pre-Intermediate	Z	2
A003TV	Physical Education	Z	2

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: 2020_BOESVOL
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
A0B04C2L	Czech language 2	Z	2
The course is aimed at foreign students studying in Czech, it further develops their language knowledge and skills to meet the needs of technical university students.			
A0B04C2Z	Czech language 2	Z	2
The course is aimed at foreign students studying in Czech, it further develops their language knowledge and skills to meet the needs of technical university students			
A0B04CA	Technical English for Pre-Intermediate	Z	2
A0B04CAE1	Certificate of Advanced English CAE 1	Z	2
The aim of the course is to prepare for Certificate of Advanced English - the second highest level Cambridge ESOL exam. The course CAE1 covers units 1-4. Studying for CAE helps you to improve your language skills (reading, writing, English in use, listening and speaking) and use them in a wide range of contexts. The exam is based on realistic tasks and indicates the ability to use the language in practical situations. You will be able to participate in meetings and discussions, expressing opinions clearly and be able to understand and produce texts of various types. CAE is recognised by the majority of universities in English speaking countries as proof of adequate language skills for courses taught and assessed in English as well as by employers who require knowledge of a foreign language. CAE is taken by more than 60 000 people each year in more than 60 countries. It is possible but not necessary for obtaining credit to take CAE at British Council.			
A0B04CAE2	Certificate of Advanced English CAE 2	Z	2
The aim of the course is to prepare for Certificate of Advanced English - the second highest level Cambridge ESOL exam. The course CAE2 covers units 5-8. Studying for CAE helps you to improve your language skills (reading, writing, English in use, listening and speaking) and use them in a wide range of contexts. The exam is based on realistic tasks and indicates the ability to use the language in practical situations. You will be able to participate in meetings and discussions, expressing opinions clearly and be able to understand and produce texts of various types. CAE is recognised by the majority of universities in English speaking countries as proof of adequate language skills for courses taught and assessed in English as well as by employers who require knowledge of a foreign language. CAE is taken by more than 60 000 people each year in more than 60 countries. It is possible but not necessary for obtaining credit to take CAE at British Council. Student is allowed to enrol only into one CAE course during one semester.			
A0B04CAE3	Certificate of Advanced English CAE 3	Z	2
The aim of the course is to prepare for Certificate of Advanced English - the second highest level Cambridge ESOL exam. The course CAE3 covers unit 9 - 12. Studying for CAE helps you to improve your language skills (reading, writing English in use, listening and speaking) and use them in a wide range of contexts.			
A0B04CIN		Z	2
A0B04CIN2	Chinese Language 2	Z	2
A0B04F1	French language 1	Z	2
A0B04F2	French language 2	Z	2
A0B04F3	French Language 3	Z	2
A0B04FCE1	FCE 1	Z	2
The course is aimed for students, employees of the Faculty and the public whose knowledge of English corresponds to B1 level according to the European Language Frame. The course focuses on improving all language skills - writing, speaking, reading, listening, grammar and phonetics - and is submitted to the goal of obtaining the required skills needed for B2 ELF.			

A0B04FCE2	FCE 2	Z	2
The course is aimed for students, employees of the Faculty and the public whose knowledge of English corresponds to B1 level according to the European Language Frame. The course focuses on improving all language skills - writing, speaking, reading, listening, grammar and phonetics - and is submitted to the goal of obtaining the required skills needed for B2 ELF.			
A0B04FCE3	FCE 3	Z	2
The course is aimed for students, employees of the Faculty and the public whose knowledge of English corresponds to B1 level according to the Common European Framework of Reference for Languages (CEFR). The course focuses on improving all language skills - writing, speaking, reading, listening, grammar and phonetics - and is submitted to the goal of obtaining the required skills needed for B2 CEFR.			
A0B04FCE4	FCE4	Z	2
The course is aimed for students, employees of the Faculty and the public whose knowledge of English corresponds to B1 level according to the European Language Frame. The course focuses on improving all language skills - writing, speaking, reading, listening, grammar and phonetics - and is submitted to the goal of obtaining the required skills needed for B2 ELF.			
A0B04GA		Z	2
The aim of this course is to extend and complement grammatical patterns covered in other English courses that are intended for full-time students. The course is meant mainly as a supplement for students who have not yet passed the B2 examination and are interested in further study and additional practice.			
A0B04GN	German Grammar	Z	2
A0B04JAP	Japanese	Z	2
A0B04JAP2	Japanese 2	Z	2
A0B04KA	English Conversation 2	Z	2
The course is designed for students who want to develop their communication skills. Students will be given the opportunity to use the vocabulary they already know, as well as learn new words and phrases, to communicate on a variety of topics and themes. This course is not designed for beginners.			
A0B04KA2	English Conversation 2	Z	2
The course is designed for students who want to develop their communication skills. Students will be given the opportunity to use the vocabulary they already know, as well as learn new words and phrases, to communicate on a variety of topics and themes. The course is generally designed as a follow-up to the Conversation One course, building on the skills presented there; however, attending Conversation One is not a pre-requisite. This course is not designed for beginners.			
A0B04KF1	French conversation 1	Z	2
A0B04KF2	French conversation 1	Z	2
A0B04KN	German Conversation	Z	2
A0B04KN2	German conversation 2	Z	2
A0B04KR2	Russian conversation 2	Z	2
A0B04KS1	Spanish conversation 1	Z	2
A0B04KS2	Spanish conversation 2	Z	2
A0B04N1	German language 1	Z	2
A0B04N2	German language 2	Z	2
A0B04N3	German language 3	Z	2
A0B04OA	Technical English Course	Z	2
This course is designed for students who have successfully passed the B2 Exam or have met the exam requirement. Its main objective is to prepare students to be able to communicate about technical subject matter in English in a variety of formats. This will be practiced by examining the structure and style of writing in formal English and practicing via 3 different types of texts: an abstract, a short explanatory article, and a research article.			
A0B04ON	Professional German	Z	2
A0B04PZP	Preparation for stay in Germany	Z	2
A0B04R1	Russian language 1	Z	2
A0B04R2	Russian language 2	Z	2
A0B04R3	Russian language 3	Z	2
A0B04R4	Russian language 3	Z	2
A0B04RET	Rhetoric	Z	2
The objective of the subject is to master and improve skills necessary for successful presentation as well as enhancing the communicative ability of the prospective engineers and bachelors. This subject will enable the students to develop both spoken and written presentations, non verbal communication and remove the psychological barriers for public speaking so that the students can create a good image. The course "Retorika" provides an introduction to this subject.			
A0B04S1	Spanish language 1	Z	2
A0B04S2	Spanish language 2	Z	2
A0B04S3	Spanish language 3	Z	2
A0B04S4	Spanish Language 4	Z	2
A0B16EPD	Business economics	KZ	4
Basic course of Business Economics deals with the subject from wide angle of view, discussing all particular aspects of Business Economics (see list of topics below), and relationships between them. Aim of the course is to show Business Economics in its complexity. The course is focused on more practical questions than a plain theory. General conclusions of each sub-topic follow concrete practical examples. Own business plan is prepared by each student as a semestra project. The business plan plays a key role for exam result of each student.			
A0B16PRS	Presentation skills	Z	2
Students will learn to prepare and to do presentation. They will obtain skills how to prepare written documents using typographic principles and proper way of citation and referencing. They will prove gained theoretical knowledge on self prepared interactive presentation that is recorded on video and discussed.			
A1B16MME	Macro and Microeconomics	Z,ZK	5
Basic economic terms, market, law of demand, law of supply, market equilibrium, price regulation, price and income elasticities, consumer's behavior, producer's behavior, cost, revenue, profit, market failure, monopoly, government macroeconomic policy, gross domestic product, multipliers, money, inflation, banking system, monetary policy, labor market, business cycle, fiscal policy, foreign trade policy, comparative advantage, CR and EU, Euro.			
A8B01AMA	Advanced Matrix Analysis	Z,ZK	4
The course covers advanced topics of linear algebra, in particular matrix factorizations and construction of matrix functions.			

A8B01DMG	Discrete Math.& Graphs	Z,ZK	5
The course introduces basic notions from discrete mathematics directed to those topics useful for electrical engineering studies. The content of the course covers: infinite sets with emphasis to cardianlity of sets, binary relations with emphasis to equivalence relations and partial ordes'; integers, relation modulo n'; basic algebraic structures (includin finite fields of characteristic 2). Furher the course contains basic notions and their applications from graph theory.			
A8B01LAG	Linear Algebra	Z,ZK	7
This course covers introductory topics of linear algebra. The main focus is on the related notions of linear spaces and linear transformations (linear independence, bases and coordinates) and matrices (determinants, inverse matrix, matrix of a linear mapping, eigenvalues). Applications include solving systems of linear equations, geometry in n-space (including dot product and cross product).			
A8B01MC1	Mathematics-Calculus1	Z,ZK	7
The aim of the course is to introduce students to basics of differential and integral calculus of functions of one variable.			
A8B01MCM	Mathematics-Calculus m-D	Z,ZK	7
The 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 series and power series with application to Taylor and Fourier series.			
A8B01MCT	Mathematics-Complex Variable and Integral Transforms	Z,ZK	7
A8B01OGT	Optimization and Game Theory	Z,ZK	4
A8B14ADP	Algorithm Development and Programming	Z,ZK	5
Course objective: Introduction to algorithm design of basic and more advanced computer tasks, Digital computer structure, Introduction to the C programming language, Syntax and semantics. Basic skills of procedural programming paradigm, variable, data type, declaration, operators, expressions, statements, functions, parameter passing, arrays, pointers, structures, compilation and debugging methods, preprocessor, conditional compilation, standard libraries, specific of embedded computer systems programming and debugging.			
A8B17CAS	Computer Algebra Systems (CAS)	Z	2
A8B17EFC	Electrical Field and Circuits	KZ	4
A8B17ELD	Electrodynamics	Z,ZK	5
The course AEB17ELD (electrodynamics) is a follow up of the course AEB17EMTA (Electromagnetic field theory). The course starts with a decomposition of electromagnetic field into planewaves, introduces radiation of waves and guides student through the interaction of electromagnetic waves with material boundaries. The theory of wave guides and transmission lines is also shown. The course ends with wave scattering. The knowledge gained in this course is needed for number of specialized master courses.			
A8B17EMTA	Electromagnetic Field Theory	Z,ZK	7
Students get acquainted with physics fundaments of the electromagnetic theory and with its mathematical description. Particularly, the course guides student through electrostatics, magnetostatics, introduces coupling between time varying fields and it is ends with an introduction to an electromagnetic wave. The knowledge gained in this course are needed for the subsequent course AE8B17ELD (Electrodynamics), for the course of circuit theory, theory of semiconductors and a number of specialized master courses.			
A8B31AAC	Analog and Active Circuits	Z,ZK	6
The subject AE8B31AAC is oriented on presentation, matematical description, analysis and sythesis of basic analogue active circuits and function blocks of electronic systems based on basic semiconductor electronic components operating in linear and non-linear modes.			
A8B31CIR	Circuit Theory	Z,ZK	8
The subject AE8B31CIR is a complet systematic presentation of electrical circuit theory. It is based on general physical nature of electromagnetic effects, an electric circuit is presented as a special quasistationary case of electromagnetic field. It defines basic circuit quantities (voltage, current) and basic circuit elements modeling all kinds of actual energy interactions. The subject is specifically oriented on linear electrical circuit (analogue LTI systems), it presents basic priciples and theorems of circuit theory, and analysis methods of linear circuits working in steady and transient states (modes), respectively. The time domain and frequency domain analysis is strictly differentiated. "System? characterization is applied on circuit transfer properties analysis, stability analysis, and feedback theory. At the end the subject deals with basis of discrete LTI systems theory.			
A8B32DNT	Data Networks Theory	Z,ZK	5
A8B32DSP	Digital Signal Processing	Z,ZK	5
This subject is focused upon basics in the digital signal processing, systems and methods for digital signal processing.			
A8B32IES	Introduction to Electronic Systems	Z	2
This is a motivation subject with syllabus composed of a set of demonstrations and measurements. Its content is divided into several themes. Students have a choice from this offer based on their pre-knowledge. The goal is to complete the missing knowledge and skills which may vary in students comming from various schools. The next goal is to get an idea about the scope of the OES programme.			
A8B34EOD	Electronic and Optoelectronic Devices	Z,ZK	6
This course introduces the basic theory, principles of operation and properties of electronic and optoelectronic devices. Physical principles of operation, device structures and characteristics are explained together with adequate models for small- and large-signal. Basic applications in analogue and digital electronics are examined. In seminars and labs, students are introduced to basic principles of device simulation, measurement of device characteristics and extraction of device parameters. Operation of electron devices in electronic systems is then analyzed using the PSpice simulator.			
A8B34SST	Solid State Physics	Z,ZK	4
The subject is aimed on solid state physics including some parts of statistical physics. The subject informs about basic properties of materials used in electronics, esp. about semiconductors.			
A8B37DCMA	Digital Communications	Z,ZK	6
The course provides fundamentals of digital communications theory: modulation, classical coding, channel models, and basic principles of decoding. The exposition is systematically built along the theoretical lines which allow to reveal all inner connections and principles. This allows students to develop the knowledge and use it in an active way in a design and construction of the communication systems. The course provides a necessary fundamental background for subsequent more advanced communications theory courses.			
A8B37DIT	Digital Design	Z,ZK	5
The goal of this course is to introduce the philosophy of digital circuits' design, to provide formal description of combinational and sequential logical circuits, their functional blocks. Both mathematical and functional description, as well as minimization algorithms for output and transient functions of digital components and circuits is presented. Karnaugh maps, latch elements, finite-state Mealy and Moore machines are the essential part of the content. The subject matter discussed will be tested on the typical design of digital circuits.			
A8B37SAS	Signals and Systems	Z,ZK	8
Continuous and discrete time signal representation in time and frequency domain. Stochastic signals and their parameters. Elementary principles of analog modulations with their noise conditions. Fundamental course for further study focusing on communication, measurement and signal processing.			
A8B37SSP	Statistical Signal Processing	Z,ZK	6
The course provides fundamentals in three main domains of the statistical signal processing: 1) estimation theory, 2) detection theory, 3) optimal and adaptive filtering. The statistical signal processing is a core theory with many applications ranging from digital communications, audio and video processing, radar and radio navigation, measurement and experiment evaluation, etc.			
A8B38EME	Electronic Measurements	KZ	4
The course is focused to metrology fundamentals and uncertainty apparatus. It explains both elementary principles and selected advanced methods used in electronics, telecommunications and radio communications.			
A8BPROJ2	Project	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.			
B0B01PST	Probability and Statistics	Z,ZK	7
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 to the department website: http://jazyky.fel.cvut.cz/			
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.			
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 philosophy and connection of old philosophical thoughts with recent problems of science, technology, economics and politics.			
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 thoughts with recent problems of science, technology, economics and politics.			
B0B16HI1	History 1	KZ	4
B0B16HT1	History of science and technology 1	KZ	4
B0B16HTE	History of technology and economic	ZK	2
B0B16MPL	Psychology for managers	ZK	2
B0B16MPS	Psychology	Z,ZK	4
B0B39GRT	Graphical Design	KZ	5
The course grants an overview of graphical design and typography. It includes also a practical training in creating graphical design of electronical documents and hand drawing.			
B2B02FY1	Physics 1	Z,ZK	8
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.			
B2B02FY2	Physics 2	Z,ZK	7
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.			
B3B04PSA	Academic Writing	KZ	2
Practically focused course in which students learn how or improve their ability to correctly and effectively formulate common written documents such as their own notes, research, reports, protocols, articles, etc. Students will be acquainted with the main principles of writing professional texts.			
B6B04PRE	Presentation	KZ	3
BBAP15	Bachelor thesis	Z	15
BE9M04AKP	Academic Writing	KZ	2
ACADEMIC WRITING COURSE (BE9M04AKP) Objective(s): The overall aim of this course is not to increase the student's level of English, but to improve the student's skills and abilities of writing academically (in English). This course is not simply an opportunity for students who have registered to have someone (the instructor) simply proofread and correct their texts - the ultimate goal of the course will be that the student is able to write (better) in English at an academic level. If a student's level of English is not up to the expected level of this course (B2 Upper-Intermediate), it is the student's responsibility to take action to improve it (outside of this course). It is hoped that by working and writing in English on a regular basis throughout this course that participants will, naturally, improve their level of English in one way or another.			
BE9M04PRE	Presentation Skills	KZ	2
The overall aim of this course is to develop communication and language skills in order to plan and deliver an effective presentation. Students will be taken systematically through the key stages of giving presentations, from planning and introducing to concluding. Students are guided, using interactive methods, to communicate their thoughts and ideas in a logical and structured order - and in as brief or succinct a way as possible. Emphasis is placed on independent, critical thinking and the correct formulation of presenting ideas; throughout this course students will practice skills that will enable them to become better speakers and presenters.			
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.			
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 http://bilakniha.cvut.cz/en/f3.html
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