Recomended pass through the study plan

Name of the pass: Passage through study

Faculty/Institute/Others:

Department:

Pass through the study plan: Electrical Engineering and Computer Science (EECS)

Branch of study guranteed by the department: Common courses

Guarantor of the study branch: Program of study: Welcome page Type of study: unknown full-time

Note on the pass:

Coding of roles of courses and groups of courses:

P - compulsory courses of the program, PO - compulsory courses of the branch, Z - compulsory courses, S - compulsory elective courses, PV - compulsory elective courses, F - elective specialized courses, V - elective courses, T - physical training courses

Coding of ways of completion of courses (KZ/Z/ZK) and coding of semesters (Z/L):

KZ - graded assesment, Z - assesment, ZK - examination, L - summer semester, Z - winter semester

Number of semester: 1

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
BEEZZ	Basic health and occupational safety regulations Radek Havlí ek, Vladimír K la, Ivana Nová Radek Havlí ek Vladimír K la (Gar.)			2BP+2BC	Z	Р
BE5B01MA1	Calculus 1 Paola Vivi Paola Vivi (Gar.)	Z,ZK	7	4P+2S	Z	Р
BE5B01DMG	Discrete Mathematics and Graphs Jan Hamhalter Jan Hamhalter (Gar.)	Z,ZK	5	3P+1S	Z	Р
BE5B01LAL	Linear Algebra Paola Vivi Paola Vivi (Gar.)	Z,ZK	8	4P+2S	Z	Р
BE5B33PRG	Programming Essentials Pavel Šindler, Petr Pošík, Milan N mý Tomáš Svoboda Tomáš Svoboda (Gar.)	Z,ZK	6	2P+2C	Z	Р
BEEZB	Safety in Electrical Engineering for a bachelor's degree Radek Havlí ek, Vladimír K la, Ivana Nová Radek Havlí ek Vladimír K la (Gar.)	Z	0	2BP+2BC	Z,L	Р
BEECSVOL	Elective special subjects	Min. cours.	Min/Max 0/999			V

Number of semester: 2

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
BE5B33ALG	Algorithms Robert P ni ka, Daniel Pr ša Daniel Pr ša (Gar.)	Z,ZK	6	2P+2C	Z	Р
BE5B01MA2	Calculus 2 Paola Vivi Paola Vivi Petr Habala (Gar.)	Z,ZK	7	4P+2S	L	Р
BE5B01DEN	Differential Equations&Numerical Methods Petr Habala Petr Habala (Gar.)	Z,ZK	7	4P+2C	L	Р
BE5B15MAA	Mathematical Applications Stanislav Vítek, Jan Kyncl, Václav Vencovský Jan Kyncl Jan Kyncl (Gar.)	Z,ZK	4	0P+4C	L	Р
BE5B02PH1	Physics 1 Stanislav Pekárek, Jaroslav Jíra Stanislav Pekárek Stanislav Pekárek (Gar.)	Z,ZK	8	4P+1L+2C	L	Р

Number of semester: 3

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
BE5B31ZEO	Fundamentals of Electrical Circuits Pavel Máša Pavel Máša Ji í Hospodka (Gar.)	Z,ZK	5	2P+2S	Z	Р

BE5B02PH2	Physics 2 Stanislav Pekárek, Jaroslav Jíra Stanislav Pekárek Stanislav Pekárek (Gar.)	Z,ZK	7	3P+1L+2C	Z	Р
BE5B01PRS	Probability and Statistics Kate ina Helisová, Bogdan Radovi Kate ina Helisová (Gar.)	Z,ZK	7	4P+2S	Z	Р
BEECSPV	Compulsory subjetcs of the branch BE5B35ARI,BE5B99CPL, (see the list of groups below)	Min. cours.	Min/Max 39/81			PV

Number of semester: 4

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
BE5B34ELP	Electron Devices Alexandr Laposa, Adam Bou a Adam Bou a Pavel Hazdra (Gar.)	Z,ZK	5	2P+2L	L	Р
BE5B34MIK	Microcontrollers Tomáš Teplý, Vladimír Janí ek Tomáš Teplý Vladimír Janí ek (Gar.)	Z,ZK	6	2P+2L	L	Р
BEECSPV	Compulsory subjetcs of the branch BE5B35ARI.BE5B99CPL (see the list of groups below)	Min. cours.	Min/Max 39/81			PV
BEECSVOL	Elective special subjects	Min. cours.	Min/Max 0/999			V

Number of semester: 5

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	r Role P
BE5B99PRO	Project Jaroslav Knápek, Jan Jandera Jan Jandera Jaroslav Knápek (Gar.)	Z	10	2P+2S+6D	Z	Р
BEECSPV	Compulsory subjetcs of the branch BE5B35ARI,BE5B99CPL, (see the list of groups below)	Min. cours.	Min/Max 39/81			PV
BEECSVOL	Elective special subjects	Min. cours.	Min/Max 0/999			V

Number of semester: 6

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
BBAP20	Bachelor thesis Roman mejla Roman mejla (Gar.)	Z	20	12S	L,Z	Р
BE5B16EPD	Business Economics Tomáš Podivínský Tomáš Podivínský (Gar.)	KZ	4	2P+2S	Z,L	Р
BEECSVOL	Elective special subjects	Min. cours.	Min/Max 0/999			V

List of groups of courses of this pass with the complete content of members of individual groups

Kód		Name of the group of group (for specification	courses and on see here o	codes of members of this r below the list of courses)	Com	pletion	Credit	s Scope	Semester	Role
BEECS	SPV	Compuls	ory subjetcs	of the branch	Min.	cours. 7	Min/Ma 39/81			PV
BE5B35ARI	Automatic	Control	BE5B99CPL	C Programming Language		BE5B32F	KS	Computer and Communication Netwo		
BE5B35APO	Computer	Architectures	BE5B33KUI	Cybernetics and Artificial Intel		BE5B149	SP1	Electric Machi	nery and Appa	ratus
BE5B17EMT	Electromaç	gnetic Field Theory	BE5B35LSP	Logic Systems and Processors		BE5B13N	MVE	Materials for Power Electrical E		I E
BE5B33RPZ	Pattern Re	cognition and Machine	BE5B15EN1	Power Engineering 1		BE5B15B	EN2	Power Engineering 2		
BE5B38SME	Sensors ar	nd Measurement	BE5B31TES	Signal Theory						

DEODOGOWIE	OCHOOLS at	ia weasurement	DEODOTTEO	Olgital Tricory						
BEECSV	/OI	Floa	tive engelel e	whicato	Min.	cours.	Min/Max		V	
BEECSV	/OL	Elec	tive special s	subjects		0	0/999		v	

List of courses of this pass:

DD 4 D00	Name of the course	Completion	Credits
BBAP20	Bachelor thesis	Z	20
BE5B01DEN	Differential Equations&Numerical Methods	Z,ZK	7
This course introdu	ces students to the classical theory of ordinary differential equations (separable and linear ODEs) and also to bsics of numerical meth	ods (errors in calc	ulations and
stability, numerica	al solutions of algebraic and differential equations and their systems). The course takes advantage of the synnergy between theoretical	al and practical poi	int of view.
BE5B01DMG	Discrete Mathematics and Graphs	Z,ZK	5
	course is to introduce students to fundamentals of Discrete Mathematics with focus on electrical engineering. The content of the cour		
propositional and p	redicate logic, infinite sets with focus on the notion of cardinality of sets, binary relations with focus on equivalences and partial ordering	ngs; integers, relat	ion modulo:
	algebraic structures including Boolean algebras. Further, the course covers basics of the Theory of Graphs.		_
BE5B01LAL	Linear Algebra	Z,ZK	8
The course cove	rs standard basics of matrix calculus (determinants, inverse matrix) and linear algebra (basis, dimension, inner product spaces, linea eigenvalues and eigenvectors. Matrix similarity, orthogonal bases, and bilinear and quadratic forms are also covered.	r transformations)	including
BE5B01MA1	Calculus 1	Z,ZK	7
	ry course to calculus of functions of one variable. It starts with limit and continuity of functions, derivative and its geometrical meaning covers indefinite integral, basic integration methods and integrating rational functions, definite integral and its applications. It conclude series.		
BE5B01MA2	Calculus 2	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. Fou	rier series are also	introduced.
BE5B01PRS	Probability and Statistics Introduction to the theory of probability, mathematical statistics and computing methods together with their applications of pra	Z,ZK	7
BE5B02PH1	Physics 1	Z,ZK	8
	f physics at the Faculty of Electrical Engineering - Physics 1, is devoted to the introduction into two important areas of physics. The firs	· .	_
	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	-	-
-	cal mechanics is followed by the relativistic mechanics, electric and magnetic field - both stationary as well as non-stationary. The study	_	
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.		
BE5B02PH2	Physics 2	Z,ZK	7
Within the framewo	ork of this course the students will first of all learn foundations of thermodynamics. Following topic - the theory of waves - will give to t	he 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		D (')
	ch as acoustic or optical waves are the subjects of the following section. Quantum mechanics and nuclear physics will complete the s	tudent?s general e	education in
	ch as acoustic or optical waves are the subjects of the following section. Quantum mechanics and nuclear physics will complete the sedge gained in this course will help to the students in study of such modern areas as robotics, computer vision, measuring technique and	tudent?s general e	education in
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BE5B31TES Signal Theory Z,ZK 5 Course explains basic terms and methods for representation and analysis of continuous-time and discrete-time signals and systems. Representations of signals and systems in continuous and discrete-time is developed for time and frequency domains through the Fourier transform. Bode and Nyquist plots as well as the Laplace transform and the Z-transform are used for stability analysis of feedback systems. Linearization by small-signal analysis is introduced. Filtering and filter design, sampling and interpolation are discussed. Analog and pulse modulation fundamentals and their characteristics are introduced. Characteristics of band-pass signals are discussed, including Hilbert transform and complex envelope. Fundamentals of random signals and their parameters are reviewed. BE5B31ZEO Fundamentals of Electrical Circuits Z,ZK The subject describes fundamental methods of electrical circuit analysis. After a brief introductory part where the difference between an electrical device and its models is introduced, the basic ideal passive and active circuit elements are then defined. Next, basic circuit quantities are defined; lectures are then focused on important laws and methods of analysis of electrical circuits. Circuit theorems, an analysis of DC circuits, AC circuits, first-order and second-order circuits are described. Finally, a brief description of more sophisticated methods of analysis (Laplace transform, pulse excitation) is done. The seminars are focused on getting a theoretical experience in analysis of electrical circuits, supplemented with simulations and simple measurement. BE5B32PKS Computer and Communication Networks 7.7K 6 The aim of the course is to familiarize students with current trends in the switched local networks and the key functions of routing protocols in IP networks. The course is aimed rather primarily practically then theoretically. BE5B33ALG Algorithms Z,ZK 6 In the course, the algorithms development is constructed with minimum dependency to programming language; nevertheless the lectures and seminars are based on Python. Basic data types a data structures, basic algorithms, recursive functions, abstract data types, stack, queues, trees, searching, sorting, special application algorithms, Dynamic programming. Students are able to design and construct non-trivial algorithms and to evaluate their affectivity. BE5B33KUI Cybernetics and Artificial Intelligence Z,ZK 6 The course introduces the students into the field of artificial intelligence and gives the necessary basis for designing machine control algorithms. It advances the knowledge of state space search algorithms by including uncertainty in state transition. Students are introduced into reinforcement learning for solving problems when the state transitions are unknown, which also connects the artificial intelligence and cybernetics fields. Bayesian decision task introduces supervised learning. Learning from data is demonstrated on a linear classifier. Students practice the algoritms in computer labs. BE5B33PRG **Programming Essentials** The course focuses on understanding and mastering basic design principles of algorithms. It develops data abstraction coupled with the essential programming patterns. The emphasis is on creating readable and reusable programs. BE5B33RPZ Pattern Recognition and Machine Learning 7.7K 6 The basic formulations of the statistical decision problem are presented. The necessary knowledge about the (statistical) relationship between observations and classes of objects is acquired by learning on the raining set. The course covers both well-established and advanced classifier learning methods, as Perceptron, AdaBoost, Support Vector Machines, and Neural Nets. This course is also part of the inter-university programme prg.ai Minor. It pools the best of AI education in Prague to provide students with a deeper and broader insight into the field of artificial intelligence. More information is available at https://prg.ai/minor. BE5B34ELP **Electron Devices** Z,ZK 5 This course introduces the basic theory, principles of operation and properties of electron 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 devices is then analyzed using the Spice simulator. BE5B34MIK Microcontrollers The goal of this course is to make students acquainted with recent interesting applications, smart sensors circuits and peripherals handled by microcontrollers. In a lab students will program their own application and measure its properties. Because of usage of a programming language C it will be possible to focus on the practical part of the realization. BE5B35APO Computer Architectures Subject provides overview of basic building blocks of computer systems. Explanation starts from hardware side where it extends knowledge presented in the previous lectures of Structures of computer systems. Topics cover building blocks description, CPU structure, multiple processors interconnections, input/output subsystem and basic overview of network and buses topologies. Emphasis is placed on clarification of interconnection of hardware components with software support, mainly lower levels of operating systems, device drivers and virtualization techniques. General principles are more elaborated during presentation of examples of multiple standard CPU architectures. Exercises are more focused on the software view to the contrary. Students are lead from basic programming on CPU level to the interaction with raw hardware. BE5B35ARI **Automatic Control** Foundation course of automatic control. Introduction to basic concepts and properties of dynamic systems of physical, engineering, biological, economics, robotics and informatics nature. Basic principles of feedback and its use as a tool for altering the behavior of systems and managing uncertainty. Classical and modern methods for analysis and design of automatic control systems. Students specialized in systems and control will build on these ideas and knowledge in the advanced courses to follow. Students of other branches and programs will find out that control is a inspiring, ubiquitous and entertaining field worth of a future cooperation. BE5B35LSP Logic Systems and Processors 7.7K The course introduces the basic hardware structures of computing resources, their design, and architecture. It provides an overview of the possibilities of performing data operations at the hardware level and the design of embedded processor systems with peripherals on modern FPGA programmable logic circuits, which are increasingly widely used today. Students will learn their description in VHDL, from logic to more complex sequential circuits to practical finite state machine (FSM) designs. They will also master the correct design procedure using circuit simulation. Practical problems are solved using development boards used at hundreds of leading universities around the world. The course ends with RISC-V processor structure, cache, and pipeline processing. BE5B38SME Sensors and Measurement Z,ZK 6 Basic circuits and instruments for measurement of electrical quantities, AD and DA converters, sensors focused to use in robotics and automation, intelligent sensors, methods of decreasing uncertainties. BE5B99CPL C Programming Language Z,ZK The course provides complete knowledge of the C programming language regarding a program structure operation, memory access, and multi-thread applications. The course emphasis a ?good? programming style to develop clean, easy-to-read, and re-usable code. Students are introduced into the process of the source code compilation and active debugging. Lectures introduce basic code structures and demonstration applications which link together partial constructs and practical coding aiming for cleanliness and structure of the source code, computational efficiency optimized using code profiling and debugging. Students are introduced into the fundamental principles of parallel multi-thread programming, synchronization mechanism and multi-thread application models. The end of the course presents introduction to principles of object oriented programming and C++. BE5B99PRO Project 10 An individual student project. The student works on a topic of his or her interest under supervision of a faculty staff member. The topic selection is supposed to be consulted with the tutor. Aside the individual work and consultancies the project course is accompanied by lectures and practical seminars about economic aspects of projects, presentation skills and technical writing.

BEEZB	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.							
BEEZZ	Basic health and occupational safety regulations Z						
The guidelines were	e worked out based on The Training Scheme for Health and Occupational Safety designed for employees and students of the Czech	Technical Universit	y in Prague,				
which was provide	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.						

For updated information see http://bilakniha.cvut.cz/en/FF.html Generated: day 2025-11-21, time 07:44.