Study plan

Name of study plan: Electronics and Communications 2018

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: Electronics and Communications

Type of study: Bachelor full-time

Required credits: 176
Elective courses credits: 4
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: 156

The role of the block: P

Code of the group: 2018_BEKBAP Name of the group: Bachelor Project

Requirement credits in the group: In this group you have to gain 20 credits Requirement courses in the group: In this group you have to complete 1 course

Credits in the group: 20 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 |
|--------|---|------------|---------|-------|----------|------|
| BBAP20 | Bachelor thesis Roman mejla Roman mejla (Gar.) | Z | 20 | 12S | L,Z | Р |

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

| BBAP20 Bachelor thesis Z Z 20 |
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Code of the group: 2018 BEKBBE

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:

| J 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 |
| BEZB | Safety in Electrical Engineering for a bachelor's degree Ivana Nová, Radek Havlí ek, Vladimír K la Radek Havlí ek Vladimír K la (Gar.) | Z | 0 | 2BP+2BC | Z,L | Р |
| BEZZ | Basic health and occupational safety regulations Ivana Nová, Radek Havlí ek, Vladimír K la Radek Havlí ek Vladimír K la (Gar.) | Z | 0 | 2BP+2BC | Z | Р |

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

| BEZB | 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: 2018_BEKH

Name of the group: Humanities subjects

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 |
|----------|--|------------|---------|-------|----------|------|
| 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 | ZK | 2 | 2P+0S | Z,L | Р |

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

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

Code of the group: 2018_BEKP

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 28 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 |
|-----------|---|------------|---------|---------|----------|------|
| B2B37AVT | Audiovisual Technology František Rund, Petr Páta, Libor Husník, Miloš Klíma, Karel Fliegel Karel Fliegel Petr Páta (Gar.) | KZ | 4 | 2P+2L | L | Р |
| B2B31CZS | Digital Signal processing Petr Pollák, Petr Krýže Pavel Sovka Pavel Sovka (Gar.) | Z,ZK | 4 | 2P+2C | Z | Р |
| B2B32DATA | Data Networks Leoš Bohá, Pavel Bezpalec, Petr Hampl, Ji í Hole ek, Petr Jareš, Ján Ku erák Ján Ku erák Leoš Bohá (Gar.) | KZ | 5 | 2P + 2L | Z | Р |
| B0B01DRN | Differencial Equations and Numerical Analysis Petr Habala, Daniel Gromada, Josef Dvo ák, Karel Pospíšil Petr Habala Petr Habala (Gar.) | Z,ZK | 4 | 2P+2C | L | Р |
| B2B32DITA | Digital Technique Pavel Lafata, Tomáš Zeman Pavel Lafata Pavel Lafata (Gar.) | KZ | 4 | 2P + 2L | Z | Р |
| B2B38EMB | Electrical Measurements Jakub Svatoš, Vladimír Haasz Jakub Svatoš Jakub Svatoš (Gar.) | Z,ZK | 4 | 2P+2L | Z | Р |

| B2B17ELD | Electrodynamics Zbyn k Škvor, Vít zslav Pankrác, Lukáš Jelínek, Miloslav apek Jan Kra ek | Z,ZK | 4 | 2P+2C | L | Р |
|--------------------|--|------------|---------|------------|----------|-------------|
| B2B17EMPA | Zbyn k Škvor (Gar.) Electromagnetic Field Vit. zelov. Poplyrio Vit. zelov. Poplyrio (Cor.) | Z,ZK | 5 | 2P+2C | Z | Р |
| B2B31EO1 | Vít zslav Pankrác Vít zslav Pankrác Vít zslav Pankrác (Gar.) Electronic Circuits 1 Ji í Hospodka, Tomáš Kouba, Jan Havlík Ji í Hospodka Ji í Hospodka (Gar.) | Z,ZK | 4 | 2P+2L | L | P |
| B2B34ELPA | Electron Devices Pavel Hazdra, Jan Novák, Tomáš Teplý, Vít Záhlava Pavel Hazdra Pavel Hazdra (Gar.) | Z,ZK | 5 | 2P+2L | Z | Р |
| B2B02FY1 | Physics 1 Petr Kulhánek, Petr Koní ek Petr Kulhánek Petr Kulhánek (Gar.) | Z,ZK | 8 | 4P+1L+2C | L | Р |
| B2B02FY2 | Physics 2 Petr Kulhánek, Petr Koní ek Petr Kulhánek Petr Kulhánek (Gar.) | Z,ZK | 7 | 3P+1L+2C | Z | Р |
| B0B01KANA | Complex Analysis Zden k Mihula, Hana Tur inová, Martin Bohata Martin Bohata (Gar.) | Z,ZK | 4 | 2P+2S | Z | Р |
| B0B01LAGA | Linear Algebra Daniel Gromada, Josef Dvo ák, Ji í Velebil, Natalie Žukovec, Mat j Dostál Ji í Velebil Ji í Velebil (Gar.) | Z,ZK | 7 | 4P+2S | Z | Р |
| B0B01MA1A | Mathematical Analysis 1 Josef Dvo ák, Karel Pospíšil, Veronika Sobotíková Veronika Sobotíková (Gar.) | Z,ZK | 6 | 4P+2S | Z | Р |
| B0B01MA2A | Mathematical Analysis 2 Karel Pospíšil, Zden k Mihula, Martin Bohata, Veronika Sobotíková, Jaroslav Tišer, Martin K epela Jaroslav Tišer Petr Hájek (Gar.) | Z,ZK | 6 | 4P+2S | L | Р |
| B2B34MIT | Microelectronics Jan Novák, Tomáš Teplý, Vladimír Janí ek, Ji í Jakovenko, Vít zslav Je ábek Ji í Jakovenko Ji í Jakovenko (Gar.) | KZ | 4 | 2P+2L | Z | Р |
| B2B99PPC | Practical C/C++ programming Stanislav Vítek Stanislav Vítek Stanislav Vítek (Gar.) | KZ | 6 | 2P+2C | L | Р |
| B0B99PRPA | Procedural Programming Stanislav Vítek Stanislav Vítek Stanislav Vítek (Gar.) | KZ | 4 | 2P+2C | Z | Р |
| B2BPROJ6 | Bachelor project František Rund, Vladimír Janí ek, Pavel Máša, Lubor Jirásek, Jan Šístek, Ivan Pravda František Rund František Rund (Gar.) | KZ | 6 | 4s | Z,L | Р |
| B2B34SEE | Sesors in Electronics Miroslav Husák, Tomáš Teplý, Adam Bou a, Alexandr Laposa Miroslav Husák Miroslav Husák (Gar.) | Z,ZK | 4 | 2P+2L | L | Р |
| B2B37SAS | Signals and systems Karel Fliegel, Václav Navrátil, Pavel Puri er Karel Fliegel Karel Fliegel (Gar.) | Z,ZK | 5 | 2P+2C | L | Р |
| B0B01STP | Statistics and Probability Kate ina Helisová, Jakub Stan k, Miroslav Korbelá , Bogdan Radovi Kate ina Helisová Kate ina Helisová (Gar.) | Z,ZK | 5 | 2P+2S | L | Р |
| B2B99TPS | Technical Writing Ivana Nová, František Rund, Jan Šístek František Rund Jan Šístek (Gar.) | KZ | 4 | 2P+2C | Z | Р |
| B2B17TBK | Wireless Communication Technique P emysl Hudec, Pavel Pecha, Tomáš Ko ínek P emysl Hudec P emysl Hudec (Gar.) | KZ | 4 | 2P+2L | L | Р |
| B2B32TSI | Telecommunication Systems and Networks Petr Jareš, Ivan Pravda Ivan Pravda | KZ | 4 | 2P + 2L | Z | Р |
| B2B31ZEOA | Fundamentals of Electric Circuits Roman mejla, Pavel Máša Roman mejla Roman mejla (Gar.) | Z,ZK | 5 | 2P+2L | L | Р |
| B2B14ZEK | Fundamentals of electrotechnics | KZ | 4 | 2P+1L | | Р |
| Characteristics of | the courses of this group of Study Plan: Code=2018_BEKP Name= | :Compulsor | y subje | cts of the | programn | ne |
| B2B37AVT | Audiovisual Technology | | | 1 - | ΚZ | 4 |
| | uction to multimedia technology (audio and video). It overviews sound and picture acquisitic hysiology of hearing and vision. It provides fundamental information for understanding the m | | • | | | cording and |

| B2B37AVT | Audiovisual Technology | KZ | 4 |
|--|--|--|--|
| This course is the intro | duction to multimedia technology (audio and video). It overviews sound and picture acquisition, signal processing, transmission | on and distribution | , recording and |
| reproduction including | physiology of hearing and vision. It provides fundamental information for understanding the main principles for system solution | ns in the field. | |
| B2B31CZS | Digital Signal processing | Z,ZK | 4 |
| The subject gives over | view about basic methods of digital signal processing and their applications (examples from speech and biological signal proc | essing): disrete-ti | me signals and |
| systems, signal charac | teristics in time and frequency domain, Fourier transform, fast algorithms for DFT computation, introduction to digital filter des | ign, digital filtering | g in time and |
| frequency domain, dec | imation and interpolation and their usage in filter banks, basics of LPC analysis. Further details can be found at <a< td=""><td></td><td></td></a<> | | |
| | | | |
| href=http://noel.feld.cv | ut.cz/vyu/ae2m99czs>http://noel.feld.cvut.cz/vyu/ae2m99czs | | |
| href=http://noel.feld.cvi | | KZ | 5 |
| B2B32DATA | ut.cz/vyu/ae2m99czs>http://noel.feld.cvut.cz/vyu/ae2m99czs | | - |
| B2B32DATA The course introduces | ut.cz/vyu/ae2m99czs>http://noel.feld.cvut.cz/vyu/ae2m99czs Data Networks | various communi | ication protocol |
| B2B32DATA The course introduces used in specific types of | ut.cz/vyu/ae2m99czs>http://noel.feld.cvut.cz/vyu/ae2m99czs Data Networks students with the fundamentals of data communication networks. The course objective is to provide broader understanding of | various communi | ication protocols |
| B2B32DATA The course introduces used in specific types of | ut.cz/vyu/ae2m99czs>http://noel.feld.cvut.cz/vyu/ae2m99czs Data Networks students with the fundamentals of data communication networks. The course objective is to provide broader understanding of of data networks based on the layered OSI model. The course also provides students with fundamental understanding of TCP. | various communi | ication protocol |
| B2B32DATA The course introduces used in specific types of the Internet era of netv B0B01DRN | ut.cz/vyu/ae2m99czs>http://noel.feld.cvut.cz/vyu/ae2m99czs Data Networks students with the fundamentals of data communication networks. The course objective is to provide broader understanding of of data networks based on the layered OSI model. The course also provides students with fundamental understanding of TCP, working, including practical experience with the data networks in laboratory. | various communi/IP protocol family | ication protocoler as it is used in |
| B2B32DATA The course introduces used in specific types of the Internet era of netv B0B01DRN This course introduces | ut.cz/vyu/ae2m99czs>http://noel.feld.cvut.cz/vyu/ae2m99czs Data Networks students with the fundamentals of data communication networks. The course objective is to provide broader understanding of of data networks based on the layered OSI model. The course also provides students with fundamental understanding of TCP, vorking, including practical experience with the data networks in laboratory. Differencial Equations and Numerical Analysis | various communi/IP protocol family Z,ZK nethods (errors in | ication protocol as it is used in 4 calculations an |
| B2B32DATA The course introduces used in specific types of the Internet era of netv B0B01DRN This course introduces | ut.cz/vyu/ae2m99czs>http://noel.feld.cvut.cz/vyu/ae2m99czs Data Networks students with the fundamentals of data communication networks. The course objective is to provide broader understanding of of data networks based on the layered OSI model. The course also provides students with fundamental understanding of TCP, vorking, including practical experience with the data networks in laboratory. Differencial Equations and Numerical Analysis students to the classical theory of ordinary differential equations (separable and linear ODEs) and also to bsics of numerical metals. | various communi/IP protocol family Z,ZK nethods (errors in | ication protocol as it is used in 4 calculations and |

maps, minimization and realization of logical functions is presented, followed by brief introduction into basics of logical circuits, such as the logical gates, flip-flops, TTL and CMOS logic etc. The second part is dedicated mainly to modern designing techniques of digital circuits using programmable FPGA and VHDL language. During these lessons, the basics of VHDL together with numerous examples are evaluated to provide a complex insight into this hardware description language and modern methods of designing and realization of digital circuits.

| B2B38EMB | Electrical Measurements | Z,ZK | 4 |
|--|--|--|--|
| | nt of electrical quantities (voltage, current, power, frequency, resistance, capacitance, and inductance) are explained together | | |
| • • | y estimation. The course is closed by presenting information on several basic electronic measuring instruments and explaining | the fundamenta | als of magnetic |
| | ic information concerning measurement systems. | 7.71 | |
| B2B17ELD | Electrodynamics | Z,ZK | 4 |
| - | its students with a unified approach to time-varying electromagnetic fields and waves. | 7.71 | |
| B2B17EMPA | Electromagnetic Field [| Z,ZK | 5 |
| | dents acquinted with principles and applied electromagnetic field theory basics. | 7.71/ | 4 |
| B2B31EO1 | Electronic Circuits 1 | Z,ZK | 4 |
| | asic circuits with operational amplifiers, continues with the description of linear systems, analysis of their characteristics and func rinciples and features of circuits for generating signals and a controlled oscillator including the PLL circuit and its use. The last | - | |
| basic amplifier stages w | | t part of the cour | se is devoted to |
| B2B34ELPA | Electron Devices | Z,ZK | 5 |
| | he basic theory, principles of operation and properties of electron devices. Physical principles of operation, device structures a | , i | - |
| | models for small- and large-signal. Basic applications in analogue and digital electronics are examined. In seminars and labs, | | |
| principles of device sim | ulation, measurement of device characteristics and extraction of device parameters. Operation of electron devices in electronic | devices is then | analyzed using |
| the PSpice simulator. | | | |
| B2B02FY1 | Physics 1 | Z,ZK | 8 |
| The basic course of phy | sics at the Faculty of Electrical Engineering - Physics 1, is devoted to the introduction into two important areas of physics. The f | first one is a clas | sical mechanics |
| | e electric and magnetic field. Within the framework of the classical mechanics, the students study the particle kinematics; dynar | | |
| · · | gid bodies. The students should be able to solve basic problems dealing with the description of mechanical systems, which the | - | - |
| | echanics is followed by the relativistic mechanics, electric and magnetic field - both stationary as well as non-stationary. The st | | - 1 |
| | ly of electrical circuits, theory of electrotechnical materials or radioelectronics. Apart of this, the knowledge gained in this cours | se is required for | the study of the |
| consecutive course Phy | | 7 71/ | 7 |
| B2B02FY2 | Physics 2 | Z,ZK | |
| | closely linked with the course Physics 1. Within the framework of this course the students will first of all learn foundations of the vill give to the students basic insight into the properties of waves and will help to the students to understand that the presented | - | |
| = | bite of the waves character. Particular types of waves, such as acoustic or optical waves are the subjects of the following section | · · | |
| | plete the student?s general education in physics. The knowledge gained in this course will help to the students in study of suc | | |
| | ring technique and will allow them to understand the principles of novel technologies and functioning of new electronic devices | | |
| B0B01KANA | Complex Analysis | Z,ZK | 4 |
| B0B01LAGA | Linear Algebra | Z,ZK | 7 |
| B0B01MA1A | Mathematical Analysis 1 | Z,ZK | 6 |
| | ourse to differential and integral calculus of functions of one real variable. | _, | |
| B0B01MA2A | Mathematical Analysis 2 | Z,ZK | 6 |
| | ntroduction to the differential and integral calculus in several variables and basic relations between curve and surface integrals | | - |
| | with application to Taylor and Fourier series. | • | 1 |
| conce and perior conce | with application to raylor and rouner series. | | |
| B2B34MIT | Microelectronics | KZ | 4 |
| B2B34MIT | | | |
| B2B34MIT Students become familia | Microelectronics | | |
| B2B34MIT Students become familia | Microelectronics ar with the latest trends in the field of microelectronics. The course provide students with the microelectronic structures and ted | | |
| B2B34MIT Students become famili- micro sensors and micro B2B99PPC | Microelectronics ar with the latest trends in the field of microelectronics. The course provide students with the microelectronic structures and temperature trends in the field of microelectronics. The course provide students with the microelectronic structures and temperature trends in the field of microelectronics and integrated circuits. | chnologies of inte | egrated circuits; |
| B2B34MIT Students become familimicro sensors and micro B2B99PPC The course introduces susing parallel programm | Microelectronics ar with the latest trends in the field of microelectronics. The course provide students with the microelectronic structures and temperature trends in the field of microelectronics. The course provide students with the microelectronic structures and temperature trends in the course introduces students to the design of nanoelectronics and integrated circuits. Practical C/C++ programming tudents to the C++ and develops their practical skills in programming in C/C++ with an emphasis on solving computational tasks ing. The first part of the course is devoted to the object-oriented programming in C++ and provides students with basic data co | KZ Kand multi-thread | egrated circuits; 6 ded applications dard library STL. |
| B2B34MIT Students become familiamicro sensors and micro B2B99PPC The course introduces susing parallel programm Students learn the prince | Microelectronics ar with the latest trends in the field of microelectronics. The course provide students with the microelectronic structures and temperature trends in the field of microelectronics. The course provide students with the microelectronic structures and temperature trends in the course introduces students to the design of nanoelectronics and integrated circuits. Practical C/C++ programming tudents to the C++ and develops their practical skills in programming in C/C++ with an emphasis on solving computational tasks ing. The first part of the course is devoted to the object-oriented programming in C++ and provides students with basic data coples of parallel programming, multi-threaded applications, synchronization mechanisms and models of multi-threaded applications. | KZ s and multi-threauntainers of standons. The second p | egrated circuits; 6 ded applications dard library STL. part is dedicated |
| B2B34MIT Students become familiamicro sensors and micro B2B99PPC The course introduces susing parallel programm Students learn the prince to develop an algorithm | Microelectronics ar with the latest trends in the field of microelectronics. The course provide students with the microelectronic structures and teach-electro-mechanical systems. The course introduces students to the design of nanoelectronics and integrated circuits. Practical C/C++ programming tudents to the C++ and develops their practical skills in programming in C/C++ with an emphasis on solving computational tasks ing. The first part of the course is devoted to the object-oriented programming in C++ and provides students with basic data coples of parallel programming, multi-threaded applications, synchronization mechanisms and models of multi-threaded applications to thinking to solve computational problems by searching the problem state space. Two main approaches are considered: the contractions are considered: the contractions are considered. | KZ s and multi-threauntainers of stancons. The second pleterministic sea | egrated circuits; 6 ded applications dard library STL. part is dedicated rch of a graph |
| B2B34MIT Students become familiamicro sensors and micro B2B99PPC The course introduces susing parallel programm Students learn the prince to develop an algorithm representation of the sta | Microelectronics ar with the latest trends in the field of microelectronics. The course provide students with the microelectronic structures and teach-electro-mechanical systems. The course introduces students to the design of nanoelectronics and integrated circuits. Practical C/C++ programming tudents to the C++ and develops their practical skills in programming in C/C++ with an emphasis on solving computational tasks sing. The first part of the course is devoted to the object-oriented programming in C++ and provides students with basic data coples of parallel programming, multi-threaded applications, synchronization mechanisms and models of multi-threaded applications to thinking to solve computational problems by searching the problem state space. Two main approaches are considered: the cate space; and local optimization techniques. Additionally, students will be familiarized with models of arbitrary precision data references. | KZ s and multi-threauntainers of stancons. The second pleterministic sea | egrated circuits; 6 ded applications dard library STL. part is dedicated rch of a graph |
| B2B34MIT Students become familiamicro sensors and micro B2B99PPC The course introduces susing parallel programm Students learn the prince to develop an algorithm representation of the state of matrices, and matrix | Microelectronics ar with the latest trends in the field of microelectronics. The course provide students with the microelectronic structures and teco-electro-mechanical systems. The course introduces students to the design of nanoelectronics and integrated circuits. Practical C/C++ programming tudents to the C++ and develops their practical skills in programming in C/C++ with an emphasis on solving computational tasks sing. The first part of the course is devoted to the object-oriented programming in C++ and provides students with basic data couples of parallel programming, multi-threaded applications, synchronization mechanisms and models of multi-threaded applications to thinking to solve computational problems by searching the problem state space. Two main approaches are considered: the coate space; and local optimization techniques. Additionally, students will be familiarized with models of arbitrary precision data recalculations. | kZ s and multi-threar ntainers of stand ons. The second pleterministic sea epresentations, i | egrated circuits; 6 ded applications dard library STL. part is dedicated rch of a graph representation |
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| B2B31ZEOA | Fundamentals of Electric Circuits | Z,ZK | 5 |
|-----------|-----------------------------------|------|---|
| B2B14ZEK | Fundamentals of electrotechnics | KZ | 4 |

Code of the group: 2015_BZAJ

Name of the group: Exam from the english language

Requirement credits in the group:

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

Credits in the group: 0 Note on the group:

| Code | Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.) | Completion | Credits | Scope | Semester | Role |
|----------|--|------------|---------|-------|----------|------|
| B0B04B1K | English language B1 - classified assessment Markéta Havlí ková, Pavla Péterová, Erik Peter Stadnik, Michael Ynsua, Dana Saláková, Petra Jennings Petra Jennings (Gar.) | KZ | 0 | 0C | Z,L | Р |
| B0B04B2Z | English language B2 - exam Michael Ynsua, Dana Saláková, Petra Jennings Petra Jennings Petra 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 studen | r'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 elective courses

Minimal number of credits of the block: 20

The role of the block: PV

Code of the group: 2018_BEKPV

Name of the group: Compulsory subjects of the programme

Requirement credits in the group: In this group you have to gain at least 16 credits (at most 45)

Requirement courses in the group: In this group you have to complete at least 4 courses (at most 11)

Credits in the group: 16

Note on the group:

| Note on the 9 | i oup. | | | | | |
|---------------|--|------------|---------|-----------------|----------|------|
| 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 |
| B2B31EO2 | Electronic Circuits 2 Ji í Hospodka Ji í Hospodka Ji í Hospodka (Gar.) | Z,ZK | 4 | 2P+2L | Z | PV |
| B2B34MIK | Microcontrollers Jan Novák, Tomáš Teplý, Vladimír Janí ek Tomáš Teplý Vladimír Janí ek (Gar.) | Z,ZK | 4 | 2P+2C | Z | PV |
| B0B37NSI | Design of IoT systems Stanislav Vítek Stanislav Vítek Stanislav Vítek (Gar.) | Z,ZK | 5 | 2P + 2L + 2D | L | PV |
| B2B17OKS | Optical Communication Systems Stanislav Zvánovec, Jan Šístek, Mat j Komanec Mat j Komanec Stanislav Zvánovec (Gar.) | Z,ZK | 4 | 2P+2C | Z | PV |
| B2B34OZD | Optical sources and detectors of radiation Vit zslav Je ábek, Václav Prajzler, Tomáš Martan, David Mareš Václav Prajzler Václav Prajzler (Gar.) | Z,ZK | 4 | 2P+2L | L | PV |
| B2B32PPS | Network Planning and Operation Ji í Hole ek, Ji í Vodrážka Ji í Hole ek Ji í Vodrážka (Gar.) | Z,ZK | 4 | 2P + 2C | L | PV |
| B2B37ROZ | Radio Circuits and Devices Josef Dobeš, Karel Ulovec Karel Ulovec Josef Dobeš (Gar.) | Z,ZK | 4 | 2P+2L | L | PV |
| B2B32STE | Network Technologies Leoš Bohá Ivan Pravda Leoš Bohá (Gar.) | Z,ZK | 4 | 2P + 2C | Z | PV |

| B0B02UAK | Introduction to Acoustic Marek Brothánek, Ond ej Ji í ek Ond ej Ji í ek (Gar.) | KZ | 4 | 2P+2L | L | PV |
|----------|--|------|---|-------|---|----|
| B2B17VDP | Transmission Lines for Data Transfer Ladislav Oppl, Milan Polívka Milan Polívka (Gar.) | Z,ZK | 4 | 2P+2L | L | PV |
| B2B37ZST | Principles of Studio Technology František Rund, Jan Bedná, Martin Bernas Jan Bedná František Rund (Gar.) | Z,ZK | 4 | 2P+2L | Z | PV |

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

B2B31EO2 Electronic Circuits 2

5

The course builds on the basic electric circuits course. It introduces multistage transistor amplifiers and basic applications in the field of electronic systems. Students become familiar with design and measurement of electronic systems, including nonlinear applications with regard to the real characteristics of operational amplifiers. Next operating principles and parameters of power amplifiers, linear stabilizers, switching power supply and D/A and A/D converters are presents.

B2B34MIK 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 applications and measure actual properties. Because of usage of a programming language C it will be possible to focus on the practical part of the realization.

B0B37NSI Design of IoT systems B2B17OKS **Optical Communication Systems** Z,ZK Z.ZK

The aim of the course is to introduce students with principles of optical systems. The course covers both theoretical background of optics and practical approaches for the design of optical systems. Students extend their knowledge from the ray optics through the matrix optics, subsequently and further by the description of optical systems using Gaussian beams, towards wave and quantum optics. Then students will learn the basic mechanisms and principles of fiber optics.

B2B34OZD Optical sources and detectors of radiation Z,ZK

The aim of the course is to explain the principle of optical sources, optical amplifiers and photodetectors and their technology. Then discuss their use for informatics and sensors, including optical integrated circuits, both from a theoretical and a broader application point of view. Attention is also paid to components for optical communication and to components for physical and chemical quantities, important measuring and diagnostic methods are given.

B2B32PPS **Network Planning and Operation** Z,ZK

4

The subject expands knowledge obtained in precedent studies on such issues as network planning, network design, network constructions and network operation. Knowledge of telecommunications systems are developed in model tasks focused on the design of selected parts of the telecommunications network. Special attention is given to the legislation in telecommunications and to the business aspects of telecommunications.

B2B37R07 Radio Circuits and Devices Z,ZK

The first part contains a basic but systematical description of fundamental types of analog and digital modulations. A description of the building blocks of radio communication systems

and basic types of radio receivers follows. A description of passive and active elements with non-distributed and distributed parameters follows from the point of view their usage in radio circuits. Attention is devoted to contemporary structures with distributed parameters, microwave transistors of various types, power unipolar transistors. A description of radio function blocks is a fundamental part of the subject: radio-frequency amplifiers and their noise properties, distributed amplifiers, power amplifiers, oscillators, phase noise, crystal oscillators, mixers, double and multiply-balanced mixers.

Network Technologies

Z,ZK

The primary task of this subject is to move further already acquired fundamental networking knowledge in the context of Data Networks subject. Students will comprehend working principles of various methods to access common shared physical media, Ethernet switching technologies and WiFi networks and last but not least they will also master an essential networking theory as used in real practice. Students will be given a chance to get in touch with technology to implement simple routed and switched networks in the university network lab.

B0B02UAK Introduction to Acoustic

ΚZ

4

4

The subject provides overview of main parts of acoustics. In first lectures there is introduction to basic types of sound fields, its solutions and properties. Next chapter deals with introduction to building and room acoustics. The second half of the course deals with introductions to physiological acoustics, psychoacoustics, musical acoustics, hygiene legislation and ultrasound, infrasound and their measurement.

B2B17VDP Transmission Lines for Data Transfer B2B37ZST Principles of Studio Technology

Z,ZK

The course gives basic knowledge of elements and systems used in television and radio professional and semiprofessional studio technology and of technology of radio and television production and broadcasting. Laboratory exercises are situated in a small school studio and are completed with professional excursions

Code of the group: 2018_BEKP2

Name of the group: Compulsory subjects of the programme

Requirement credits in the group: In this group you have to gain at least 4 credits (at most 8)

Requirement courses in the group: In this group you have to complete at least 1 course (at most 2)

Credits in the group: 4

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 |
| B2B16EPO | Business economics Old ich Starý, Josef ernohous, Blanka Ku erková Josef ernohous Old ich Starý (Gar.) | KZ | 4 | 2P+2S | Z | PV |
| B2B99EKP | Electronics and communication practically Vladimir Jani ek Vladimir Jani ek Vladimir Jani ek (Gar) | KZ | 4 | 2P+2L | Z | PV |

Characteristics of the courses of this group of Study Plan: Code=2018_BEKP2 Name=Compulsory subjects of the programme

B2B16EPO **Business economics** Basic course of Business Economics deals with the subject from wide angle of view, discussing all particular aspects of Business Economics, and relationships between them. B2B99EKP Electronics and communication practically

The course is devoted to practical experiments with the ESP 32 SoC board and a set of external add-on modules. Students will get acquainted with the rules of application design in ArduinoIDE and Visual Code Studio using libraries for operating internal and external peripherals. Sample applications are focused on standardized issues that cover the professional focus of the Electronics and Communications program. Part of the exercise will be devoted to the description of the design of printed circuit boards, their production and mounting. Students will get a board with SoC ESP32 for experimentation, which they can also use for home preparation.

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 Jennings Petra Jennings (Gar.) | Z | 0 | 2C | Z | V |
| B0B04B12 | English Language B1-2 Petra Jennings Petra Jennings (Gar.) | Z | 0 | 2C | L | V |
| B0B04B21 | English Language B2-1 Petra Jennings Petra Jennings (Gar.) | Z | 3 | 2C | Z | V |
| B0B04B22 | English Language B2-2 Petra Jennings Petra 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 | students who are beginners in their second foreign language. The course objective is to develop and sustain their basic know | ledge of the Engli | sh language. |
| B0B04B11 | English Language B1-1 | Z | 0 |
| Course objective: Bro | adening the basic knowledge of general English; mastering basic specialised language; focusing on text analysis and vocabulary | expansion; unde | standing spoker |
| English. | | | |
| B0B04B12 | English Language B1-2 | Z | 0 |
| Course objective: Bro | adening the basic knowledge of general English; mastering basic specialised language; focusing on text analysis and vocabulary | expansion; unde | rstanding spoken |
| English. | | | |
| B0B04B21 | English Language B2-1 | Z | 3 |
| This course is design | ed as a full-year, two semester preparation course for the university's compulsory B2-level English Examination (Anglický jazyk | B2 - zkouška - B0 | B04B2Z*). 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 man | k), it also focuses | more on the |
| academic and technic | cal vocabulary and grammar expected of students at the university level. *NOTE: This exam is also used for determining an approximately a second control of the control of | opriate level of Eng | glish for Erasmu |
| / International Study. | | | |

B0B04B22 English Language B2-2

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

Code of the group: BTV

Name of the group: Physical education

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

Credits in the group: 0 Note on the group:

| Code | Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.) | Completion | Credits | Scope | Semester | Role |
|------|---|------------|---------|-------|----------|------|
| TVV | Physical education | Z | 0 | 0+2 | Z,L | V |

| A003TV | Physical Education | Z | 2 | 0+2 | L,Z | V |
|--------|--------------------|---|---|-----|-----|---|
| TV-V1 | Physical education | Z | 1 | 0+2 | Z,L | V |
| TVV0 | Physical education | Z | 0 | 0+2 | Z,L | V |

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

| TVV | Physical education | Z | 0 |
|--------|--------------------|---|---|
| A003TV | Physical Education | Z | 2 |
| 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

| | 0 1 7 | | |
|-------|---------------------------|---|---|
| TVKLV | Physical Education Course | Z | 0 |
| TVKZV | Physical Education Course | Z | 0 |

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

Credits in the group: 0

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

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

List of courses of this pass:

| Code | Name of the course | Completion | Credits | | | | |
|-----------------------|--|----------------------|---------------|--|--|--|--|
| A003TV | Physical Education | Z | 2 | | | | |
| B0B01DRN | Differencial Equations and Numerical Analysis | Z,ZK | 4 | | | | |
| This course introdu | ces students to the classical theory of ordinary differential equations (separable and linear ODEs) and also to bsics of numerical methods | nods (errors in calc | ulations and | | | | |
| stability, numerica | l solutions of algebraic and differential equations and their systems). The course takes advantage of the synnergy between theoretic | al and practical po | int of view. | | | | |
| B0B01KANA | Complex Analysis | Z,ZK | 4 | | | | |
| B0B01LAGA | Linear Algebra | Z,ZK | 7 | | | | |
| B0B01MA1A | Mathematical Analysis 1 | Z,ZK | 6 | | | | |
| | This is an introductory course to differential and integral calculus of functions of one real variable. | | · | | | | |
| B0B01MA2A | Mathematical Analysis 2 | Z,ZK | 6 | | | | |
| The subject cover | s an introduction to the differential and integral calculus in several variables and basic relations between curve and surface integrals | . Other part contair | ns function | | | | |
| | series and power series with application to Taylor and Fourier series. | | | | | | |
| B0B01STP | Statistics and Probability | Z,ZK | 5 | | | | |
| B0B02UAK | Introduction to Acoustic | KZ | 4 | | | | |
| The subject prov | rides overview of main parts of acoustics. In first lectures there is introduction to basic types of sound fields, its solutions and propert | ies. Next chapter d | leals with | | | | |
| introduction to build | ding and room acoustics. The second half of the course deals with introductions to physiological acoustics, psychoacoustics, musical | acoustics, hygiene | e legislation | | | | |
| | and ultrasound, infrasound and their measurement. | | | | | | |
| 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 ope | The course is open to students who are beginners in their second foreign language. The course objective is to develop and sustain their basic knowledge 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 | ding 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 | ding spoken |
| B0B04B1K | English. English language B1 - classified assessment | KZ | 0 |
| DUDU4DIK | verifying of the student's skills of B1 level | NZ | 0 |
| B0B04B21 | English Language B2-1 | Z | 3 |
| | gned as a full-year, two semester preparation course for the university's compulsory B2-level English Examination (Anglický jazyk B2 - | _ | _ |
| _ | ised on helping students reach a level required to pass the B2-level English Examination (or improve their English for a higher mark) | | - |
| academic and techr | nical vocabulary and grammar expected of students at the university level. *NOTE: This exam is also used for determining an appropria | te level of English | for Erasmus |
| | / International Study. | <u> </u> | |
| B0B04B22 | English Language B2-2 | Z | 3 |
| _ | gned as a full-year, two semester preparation course for the university's compulsory B2-level English Examination (Anglický jazyk B2 - | | |
| | ised on helping students reach a level required to pass the B2-level English Examination (or improve their English for a higher mark) nical vocabulary and grammar expected of students at the university level. *NOTE: This exam is also used for determining an appropria | | |
| academie and teem | / International Study. | no lovor or English | ioi Liadillad |
| 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 Students | , | _ |
| Regulations for Stu | dents at CTU (Part III, Article 4), a compulsory subject is one "whose completion is a necessary condition in order to successfully co | mplete the study p | orogramme." |
| | equires the "passing of an examination evaluated on the scale A, B, C, D, or E" (SERR Part III, Article 6). II) According to the Comm | • | |
| _ | uages (CEFR), an international standard for describing language ability, the definition of an English language learner who has achieve | | , |
| | .can understand the main ideas of complex text on both concrete and abstract topics, including technical discussions in his/her field uency and spontaneity that makes regular interaction with native speakers quite possible without strain for either party. Can produce | - | |
| | and explain a viewpoint on a topical issue giving the advantages and disadvantages of various options." III) Students who have succ | | |
| international exam | within the past five years may present their certificate to the Department of Languages, Faculty of Electrical Engineering. Upon appro | oval, students are t | 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 | | |
| B0B16ET1 | Ethic 1 | KZ | 4 |
| | s to provide the students an orientation not only in general problems of ethics but above all to offer instructions for solving various situations are students and in which are sent to be students as a student sent to be students. | | |
| B0B16FI1 | the subject are discussions in which students can react to lectures but also to actual questions coming with news and look for the control Philosophy 1 | KZ | 4 |
| | e most important persons, schools and ideas of ancient philosophy. We are concerned especially on transdisciplinary nature of philos | | 1 |
| Wo dod! Will the | philosophical thoughts with recent problems of science, technology, economics and politics. | opiny und connect | ion or old |
| B0B16FIL | Philosophy | ZK | 2 |
| | most important persons, schools and ideas of ancient philosophy. We are concerned especially on transdisciplinary nature of philos | l anhu and aannaat | ion of old |
| vve dear with the | s most important persons, schools and ideas of ancient prinosophy. We are concerned especially on transdisciplinary flature of prinos | opny and connect | ion oi oid |
| | philosophical thoughts with recent problems of science, technology, economics and politics. | | ion or old |
| B0B16HI1 | philosophical thoughts with recent problems of science, technology, economics and politics. History 1 | KZ | 4 |
| B0B16HI1 B0B16HT1 | philosophical thoughts with recent problems of science, technology, economics and politics. | KZ KZ | |
| B0B16HI1 B0B16HT1 B0B16HTE | philosophical thoughts with recent problems of science, technology, economics and politics. History 1 History of science and technology 1 History of technology and economic | KZ KZ ZK | 4 4 2 |
| B0B16HI1 B0B16HT1 B0B16HTE B0B16MPL | philosophical thoughts with recent problems of science, technology, economics and politics. History 1 History of science and technology 1 History of technology and economic Psychology for managers | KZ KZ ZK ZK | 4 4 |
| B0B16HI1 B0B16HT1 B0B16HTE B0B16MPL B0B16MPS | philosophical thoughts with recent problems of science, technology, economics and politics. History 1 History of science and technology 1 History of technology and economic Psychology for managers Psychology | KZ KZ ZK ZK Z,ZK | 4 4 2 |
| B0B16HI1 B0B16HT1 B0B16HTE B0B16MPL B0B16MPS B0B37NSI | philosophical thoughts with recent problems of science, technology, economics and politics. History 1 History of science and technology 1 History of technology and economic Psychology for managers Psychology Design of IoT systems | KZ KZ ZK ZK Z,ZK | 4 4 2 2 |
| B0B16HI1 B0B16HT1 B0B16HTE B0B16MPL B0B16MPS B0B37NSI B0B99PRPA | philosophical thoughts with recent problems of science, technology, economics and politics. History 1 History of science and technology 1 History of technology and economic Psychology for managers Psychology Design of IoT systems Procedural Programming | KZ KZ ZK ZK Z,ZK Z,ZK KZ | 4 4 2 2 2 4 5 |
| B0B16HI1 B0B16HT1 B0B16HTE B0B16MPL B0B16MPS B0B37NSI B0B99PRPA B2B02FY1 | philosophical thoughts with recent problems of science, technology, economics and politics. History 1 History of science and technology 1 History of technology and economic Psychology for managers Psychology Design of IoT systems Procedural Programming Physics 1 | KZ KZ ZK ZK Z,ZK Z,ZK KZ Z,ZK | 4 4 2 2 2 4 5 4 8 |
| B0B16HI1 B0B16HT1 B0B16HTE B0B16MPL B0B16MPS B0B37NSI B0B99PRPA B2B02FY1 The basic course of | philosophical thoughts with recent problems of science, technology, economics and politics. History 1 History of science and technology 1 History of technology and economic Psychology for managers Psychology Design of IoT systems Procedural Programming Physics 1 f physics at the Faculty of Electrical Engineering - Physics 1, is devoted to the introduction into two important areas of physics. The first | KZ KZ ZK ZK Z,ZK Z,ZK KZ Z,ZK KZ | 4 4 2 2 4 5 4 8 I mechanics |
| B0B16HI1 B0B16HT1 B0B16HTE B0B16MPL B0B16MPS B0B37NSI B0B99PRPA B2B02FY1 The basic course of and the second one | philosophical thoughts with recent problems of science, technology, economics and politics. History 1 History of science and technology 1 History of technology and economic Psychology for managers Psychology Design of IoT systems Procedural Programming Physics 1 f physics at the Faculty of Electrical Engineering - Physics 1, is devoted to the introduction into two important areas of physics. The first is the electric and magnetic field. Within the framework of the classical mechanics, the students study the particle kinematics; dynamic | KZ KZ ZK ZK Z,ZK Z,ZK KZ Z,ZK KZ One is a classicates of the mass part | 4 4 2 2 4 5 4 8 Il mechanics ticle, system |
| B0B16HI1 B0B16HT1 B0B16HTE B0B16MPL B0B16MPS B0B37NSI B0B99PRPA B2B02FY1 The basic course of and the second one of mass particles at | philosophical thoughts with recent problems of science, technology, economics and politics. History 1 History of science and technology 1 History of technology and economic Psychology for managers Psychology Design of IoT systems Procedural Programming Physics 1 f physics at the Faculty of Electrical Engineering - Physics 1, is devoted to the introduction into two important areas of physics. The first | KZ KZ ZK ZK Z,ZK Z,ZK KZ Z,ZK st one is a classical cost of the mass party can meet during the control of the c | 4 4 2 2 4 5 4 8 Il mechanics ticle, system their further |
| B0B16HI1 B0B16HT1 B0B16HTE B0B16MPL B0B16MPS B0B37NSI B0B99PRPA B2B02FY1 The basic course of and the second one of mass particles a studies. The classic | philosophical thoughts with recent problems of science, technology, economics and politics. History 1 History of science and technology 1 History of technology and economic Psychology for managers Psychology Design of IoT systems Procedural Programming Physics 1 f physics at the Faculty of Electrical Engineering - Physics 1, is devoted to the introduction into two important areas of physics. The first is the electric and magnetic field. Within the framework of the classical mechanics, the students study the particle kinematics; dynamical rigid bodies. The students should be able to solve basic problems dealing with the description of mechanical systems, which they | KZ KZ ZK ZK Z,ZK Z,ZK KZ Z,ZK st one is a classical cost of the mass party can meet during dents can use the | 4 4 2 2 4 5 4 8 Il mechanics ticle, system their further facts gained |
| B0B16HI1 B0B16HT1 B0B16HTE B0B16MPL B0B16MPS B0B37NSI B0B99PRPA B2B02FY1 The basic course of and the second one of mass particles a studies. The classic in this course in the | philosophical thoughts with recent problems of science, technology, economics and politics. History 1 History of science and technology 1 History of technology and economic Psychology for managers Psychology Design of IoT systems Procedural Programming Physics 1 f physics at the Faculty of Electrical Engineering - Physics 1, is devoted to the introduction into two important areas of physics. The first 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 all mechanics is followed by the relativistic mechanics, electric and magnetic field - both stationary as well as non-stationary. The students study of electrical circuits, theory of electrotechnical materials or radioelectronics. Apart of this, the knowledge gained in this course consecutive course Physics 2. | KZ KZ ZK ZK Z,ZK Z,ZK KZ Z,ZK st one is a classical cs of the mass party can meet during dents can use the is required for the | 4 4 2 2 4 5 4 8 Il mechanics ticle, system their further facts gained study of the |
| B0B16HI1 B0B16HT1 B0B16HTE B0B16MPL B0B16MPS B0B37NSI B0B99PRPA B2B02FY1 The basic course of and the second one of mass particles a studies. The classic in this course in the | philosophical thoughts with recent problems of science, technology, economics and politics. History 1 History of science and technology 1 History of technology and economic Psychology for managers Psychology Design of IoT systems Procedural Programming Physics 1 f physics at the Faculty of Electrical Engineering - Physics 1, is devoted to the introduction into two important areas of physics. The first 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 all mechanics is followed by the relativistic mechanics, electric and magnetic field - both stationary as well as non-stationary. The students study of electrical circuits, theory of electrotechnical materials or radioelectronics. Apart of this, the knowledge gained in this course consecutive course Physics 2. Physics 2 | KZ KZ ZK ZK Z,ZK Z,ZK KZ Z,ZK st one is a classica cs of the mass par can meet during dents can use the is required for the | 4 4 2 2 4 5 4 8 Il mechanics ticle, system their further facts gained study of the |
| B0B16HI1 B0B16HT1 B0B16HTE B0B16MPL B0B16MPS B0B37NSI B0B99PRPA B2B02FY1 The basic course of and the second one of mass particles a studies. The classic in this course in the | philosophical thoughts with recent problems of science, technology, economics and politics. History 1 History of science and technology 1 History of technology and economic Psychology for managers Psychology Design of IoT systems Procedural Programming Physics 1 f physics at the Faculty of Electrical Engineering - Physics 1, is devoted to the introduction into two important areas of physics. The first 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 all mechanics is followed by the relativistic mechanics, electric and magnetic field - both stationary as well as non-stationary. The students are study of electrical circuits, theory of electrotechnical materials or radioelectronics. Apart of this, the knowledge gained in this course consecutive course Physics 2. Physics 2 S 2 is closely linked with the course Physics 1. Within the framework of this course the students will first of all learn foundations of the | KZ KZ ZK ZK Z,ZK Z,ZK KZ Z,ZK st one is a classical cost of the mass partical meet during dents can use the is required for the cost of the mass partical meet during dents can use the is required for the cost of the mass partical meet during dents. | 4 4 2 2 4 5 4 8 Il mechanics ticle, system their further facts gained study of the |
| B0B16HI1 B0B16HT1 B0B16HTE B0B16MPL B0B16MPS B0B37NSI B0B99PRPA B2B02FY1 The basic course of and the second one of mass particles a studies. The classic in this course in the | philosophical thoughts with recent problems of science, technology, economics and politics. History 1 History of science and technology 1 History of technology and economic Psychology for managers Psychology Design of IoT systems Procedural Programming Physics 1 f physics at the Faculty of Electrical Engineering - Physics 1, is devoted to the introduction into two important areas of physics. The first 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 all mechanics is followed by the relativistic mechanics, electric and magnetic field - both stationary as well as non-stationary. The students study of electrical circuits, theory of electrotechnical materials or radioelectronics. Apart of this, the knowledge gained in this course consecutive course Physics 2. Physics 2 s 2 is closely linked with the course Physics 1. Within the framework of this course the students will first of all learn foundations of the ess - will give to the students basic insight into the properties of waves and will help to the students to understand that the presented of the students basic insight into the properties of waves and will help to the students to understand that the presented of the students that the presented of the student | KZ KZ ZK ZK Z,ZK Z,ZK KZ Z,ZK st one is a classical cost of the mass partical meet during dents can use the is required for the cost of th | 4 4 2 2 4 5 4 8 Il mechanics ticle, system their further facts gained study of the |
| B0B16HI1 B0B16HT1 B0B16HTE B0B16MPL B0B16MPS B0B37NSI B0B99PRPA B2B02FY1 The basic course of and the second one of mass particles a studies. The classic in this course in the B2B02FY2 The course Physics the theory of wave universal characters | philosophical thoughts with recent problems of science, technology, economics and politics. History 1 History of science and technology 1 History of technology and economic Psychology for managers Psychology Design of IoT systems Procedural Programming Physics 1 f physics at the Faculty of Electrical Engineering - Physics 1, is devoted to the introduction into two important areas of physics. The first 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 all mechanics is followed by the relativistic mechanics, electric and magnetic field - both stationary as well as non-stationary. The students are study of electrical circuits, theory of electrotechnical materials or radioelectronics. Apart of this, the knowledge gained in this course consecutive course Physics 2. Physics 2 S 2 is closely linked with the course Physics 1. Within the framework of this course the students will first of all learn foundations of the | KZ KZ ZK ZK Z,ZK Z,ZK KZ Z,ZK st one is a classical condition of the was part of the mass p | 4 4 2 2 4 5 4 8 I mechanics ticle, system their further facts gained study of the 7 lowing topic waves has a nanics and |
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of Internet of Things, operation of billions of wireless sensors is expected. The subject is common to all students of the Electronics and Communication study program, its main purpose is to teach all important aspects of this technical branch. Obtained knowledge should enable the students to design, project, adjust or manufacture any wireless communication system or its components. Besides wireless system analysis, the lectures include review of physical backgrounds, survey of the most important existing radio systems together with corresponding operational frequencies, description of electromagnetic wave propagation and related antennas. Instructions concerning propagation also cover behavior of EM waves in an urban environment or inside buildings. Lectures concerning analysis of typical wireless systems also cover description of related radio-frequency, microwave and mm-wave circuits and components. Exercises include practical calculations of wireless systems, computer analysis and synthesis of important structures and circuits, and related laboratory measurements. B2B17VDP Transmission Lines for Data Transfer Z,ZK B2B31CZS Digital Signal processing The subject gives overview about basic methods of digital signal processing and their applications (examples from speech and biological signal processing): disrete-time signals and systems, signal characteristics in time and frequency domain, Fourier transform, fast algorithms for DFT computation, introduction to digital filter design, digital filtering in time and frequency domain, decimation and interpolation and their usage in filter banks, basics of LPC analysis. Further details can be found at http://noel.feld.cvut.cz/vyu/ae2m99czs Electronic Circuits 1 B2B31EO1 Z,ZK The course introduces basic circuits with operational amplifiers, continues with the description of linear systems, analysis of their characteristics and fundamentals of synthesis frequency filters. It deals with the principles and features of circuits for generating signals and a controlled oscillator including the PLL circuit and its use. The last part of the course is devoted to basic amplifier stages with transistors. B2B31EO2 Electronic Circuits 2 The course builds on the basic electric circuits course. It introduces multistage transistor amplifiers and basic applications in the field of electronic systems. Students become familiar with design and measurement of electronic systems, including nonlinear applications with regard to the real characteristics of operational amplifiers. Next operating principles and parameters of power amplifiers, linear stabilizers, switching power supply and D/A and A/D converters are presents. B2B31ZEOA Fundamentals of Electric Circuits Z.ZK B2B32DATA **Data Networks** ΚZ 5 The course introduces students with the fundamentals of data communication networks. The course objective is to provide broader understanding of various communication protocols used in specific types of data networks based on the layered OSI model. The course also provides students with fundamental understanding of TCP/IP protocol family as it is used in the Internet era of networking, including practical experience with the data networks in laboratory. B2B32DITA Digital Technique K7 The goal of this course is to provide the introduction into designing and realization of digital circuits. First, necessary mathematical apparatus, such as the Boolean algebra, Karnaugh maps, minimization and realization of logical functions is presented, followed by brief introduction into basics of logical circuits, such as the logical gates, flip-flops, TTL and CMOS logic etc. The second part is dedicated mainly to modern designing techniques of digital circuits using programmable FPGA and VHDL language. During these lessons, the basics of VHDL together with numerous examples are evaluated to provide a complex insight into this hardware description language and modern methods of designing and realization of digital circuits. B2B32PPS **Network Planning and Operation** The subject expands knowledge obtained in precedent studies on such issues as network planning, network design, network constructions and network operation. Knowledge of telecommunications systems are developed in model tasks focused on the design of selected parts of the telecommunications network. Special attention is given to the legislation in telecommunications and to the business aspects of telecommunications. B2B32STE **Network Technologies** Z,ZK The primary task of this subject is to move further already acquired fundamental networking knowledge in the context of Data Networks subject. Students will comprehend working principles of various methods to access common shared physical media, Ethernet switching technologies and WiFi networks and last but not least they will also master an essential networking theory as used in real practice. Students will be given a chance to get in touch with technology to implement simple routed and switched networks in the university network B2B32TSI Telecommunication Systems and Networks The course introduces principles and functions of digital telecommunications systems, both transmission and switching systems as well as converged packet-oriented systems interconnected into universal telecommunication networks. B2B34ELPA 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 PSpice simulator. B2B34MIK Microcontrollers Z.ZK 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 applications and measure actual properties. Because of usage of a programming language C it will be possible to focus on the practical part of the realization. B2B34MIT Microelectronics ΚZ 4 Students become familiar with the latest trends in the field of microelectronics. The course provide students with the microelectronic structures and technologies of integrated circuits; micro sensors and micro-electro-mechanical systems. The course introduces students to the design of nanoelectronics and integrated circuits. B2B34OZD Optical sources and detectors of radiation The aim of the course is to explain the principle of optical sources, optical amplifiers and photodetectors and their technology. Then discuss their use for informatics and sensors, including optical integrated circuits, both from a theoretical and a broader application point of view. Attention is also paid to components for optical communication and to components for physical and chemical quantities, important measuring and diagnostic methods are given. B2B34SEE Sesors in Electronics Z.ZK 4 B2B37AVT Audiovisual Technology 4 This course is the introduction to multimedia technology (audio and video). It overviews sound and picture acquisition, signal processing, transmission and distribution, recording and reproduction including physiology of hearing and vision. It provides fundamental information for understanding the main principles for system solutions in the field. B2B37ROZ Radio Circuits and Devices 7.7K The first part contains a basic but systematical description of fundamental types of analog and digital modulations. A description of the building blocks of radio communication systems and basic types of radio receivers follows. A description of passive and active elements with non-distributed and distributed parameters follows from the point of view their usage in radio circuits. Attention is devoted to contemporary structures with distributed parameters, microwave transistors of various types, power unipolar transistors. A description of radio function blocks is a fundamental part of the subject: radio-frequency amplifiers and their noise properties, distributed amplifiers, power amplifiers, oscillators, phase noise, crystal oscillators, mixers, double and multiply-balanced mixers. B2B37SAS Z,ZK Signals and systems

Introductory course focused on a description of continuous- and discrete-time signals and systems in time and frequency domains. The course also introduces the basic characteristics of bandpass signals, analog modulations and random signals.

| B2B37ZST | Principles of Studio Technology | Z,ZK | 4 |
|--|--|---|--|
| The course gives b | vasic knowledge of elements and systems used in television and radio professional and semiprofessional studio technology and of tech | nology of radio | and television |
| | production and broadcasting. Laboratory exercises are situated in a small school studio and are completed with professional excu | rsions. | |
| B2B38EMB | Electrical Measurements | Z,ZK | 4 |
| Methods of meas | urement of electrical quantities (voltage, current, power, frequency, resistance, capacitance, and inductance) are explained together w | ith principles of | their correct |
| application and ac | curacy estimation. The course is closed by presenting information on several basic electronic measuring instruments and explaining the | he fundamentals | of magnetic |
| | measurements and basic information concerning measurement systems. | | |
| B2B99EKP | Electronics and communication practically | KZ | 4 |
| The course is deve | oted to practical experiments with the ESP 32 SoC board and a set of external add-on modules. Students will get acquainted with the | rules of applicat | ion design in |
| | sual Code Studio using libraries for operating internal and external peripherals. Sample applications are focused on standardized issu | | • |
| focus of the Elect | tronics and Communications program. Part of the exercise will be devoted to the description of the design of printed circuit boards, the | ir production and | d mounting. |
| | Students will get a board with SoC ESP32 for experimentation, which they can also use for home preparation. | | |
| B2B99PPC | Practical C/C++ programming | KZ | 6 |
| | ces students to the C++ and develops their practical skills in programming in C/C++ with an emphasis on solving computational tasks are | | |
| | ramming. The first part of the course is devoted to the object-oriented programming in C++ and provides students with basic data containing. | | - |
| | principles of parallel programming, multi-threaded applications, synchronization mechanisms and models of multi-threaded applications | • | |
| to develor an alac | orithmic thinking to solve computational problems by searching the problem state space. Two main approaches are considered: the de | terministic searc | • . |
| | | | |
| | the state space; and local optimization techniques. Additionally, students will be familiarized with models of arbitrary precision data rep | resentations, re | presentation |
| representation of t | of matrices, and matrix calculations. | · | |
| representation of the B2B99TPS | of matrices, and matrix calculations. Technical Writing | KZ | 4 |
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For updated information see http://bilakniha.cvut.cz/en/f3.html Generated: day 2024-05-20, time 22:02.