

Study plan

Name of study plan: 11 68 73 00 DTZI 2012 K základ

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch:

Program of study: Welcome page

Type of study: unknown combined

Required credits: 10

Elective courses credits: 207

Sum of credits in the plan: 217

Note on the plan: SP12BTZI--K # druhý pokus

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 0

The role of the block: P

Code of the group: 12DTK1P-KMEN

Name of the group: 00 2012 D kmenové 1. semestr TZI kombinované

Requirement credits in the group:

Requirement courses in the group:

Credits in the group: 0

Note on the group:

12B**1P-KMEN #

| 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 |
|---------|--|------------|---------|-------|----------|------|
| 2182019 | Chemistry Radek Šulc, Martin Dostál, Vojtěch B. Iohlav, Stanislav Solna, Jan Skořilas Radek Šulc Radek Šulc (Gar.) | KZ | 3 | 2P+1C | 1 | P |
| 2011021 | Constructive Geometry Ivana Linkeová | Z,ZK | 6 | 3P+2C | * | P |
| 2011056 | Mathematics I Radka Keslerová, Marta Hlavová, Jiří Holman, Gejza Dohnal, Marta Čertíková, Vladimír Hric, Nikola Pajerová, Petr Louda, Lukáš Hájek, Radka Keslerová Gejza Dohnal (Gar.) | Z,ZK | 8 | 4P+4C | * | P |
| 2372041 | Computer Support for Study Vladimír Hlavá | KZ | 3 | 1P+1C | * | P |

Characteristics of the courses of this group of Study Plan: Code=12DTK1P-KMEN Name=00 2012 D kmenové 1. semestr TZI kombinované

| | | | | |
|---------|----------------------------|------|---|---|
| 2182019 | Chemistry | KZ | 3 | General chemistry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties of matter, thermodynamics, phase equilibrium, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochemistry. Laboratory practice is oriented upon the material properties measurement. |
| 2011021 | Constructive Geometry | Z,ZK | 6 | The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations. |
| 2011056 | Mathematics I | Z,ZK | 8 | In the course, greater emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connections between concepts. Students will also get to know the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: eigennumbers and eigenvectors of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions. |
| 2372041 | Computer Support for Study | KZ | 3 | The course introduces students into creating technical and professional documents on computers or Web and into realizing technical computations with the use of computers. Students gain practical skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical-based WWW page. |

Code of the group: 12DTK2P-KMEN

Name of the group: 00 2012 D kmenové 2. semestr TZI kombinované

Requirement credits in the group:

Requirement courses in the group:

Credits in the group: 0

Note on the group:

12B**2P-KMEN #

| 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 |
|---------|--|------------|---------|-------|----------|------|
| 2021041 | Physics I. | Z,ZK | 7 | 4P+1L | * | P |
| 201A021 | Constructive Geometry A Ivana Linkeová | ZK | 3 | 0P+0C | * | P |
| 201A056 | Mathematics I.A Radka Keslerová | ZK | 4 | 0P+0C | * | P |
| 2011062 | Matematika II. Radka Keslerová | Z,ZK | 8 | 4P+4C | * | P |
| 2322029 | Materials Science I. Jana Sobotová, Eliška Galíková, Jiří Cejp, Pavlína Hájková, Jan Král, Vladimír Mára, Lucie Pilslová, Tereza Vacková Jana Sobotová Jana Sobotová (Gar.) | KZ | 3 | 2P+1L | 2 | P |
| 2012037 | Computer Graphics Marta Hlavová, Jiří Holman, Nikola Pajerová, Martin Hanek, Jan Karel, Ivana Linkeová, Jaroslav Cibulka Ivana Linkeová Ivana Linkeová (Gar.) | KZ | 3 | 1P+1C | * | P |
| 2131002 | Engineering Design II Eliška Cézová, Jan Flek, Jan Kanaval, Karel Petr, Martin Dub, Martin Havlíček, Jan Hoidekr Karel Petr Karel Petr (Gar.) | Z,ZK | 4 | 2P+3C | 2 | P |
| K333038 | Fundamentals of Technology I. | Z | 3 | 8B | * | P |

Characteristics of the courses of this group of Study Plan: Code=12DTK2P-KMEN Name=00 2012 D kmenové 2. semestr TZI kombinované

| | | | |
|---------|---|------|---|
| 2021041 | Physics I. Kinematics and dynamics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic properties of bodies. Oscillations, waves. Fluid mechanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Conductors, semiconductors, insulators. Magnetic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect measurements, regression, measurements of 11 various experiments related to the lectures. | Z,ZK | 7 |
| 201A021 | Constructive Geometry A The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations. | ZK | 3 |
| 201A056 | Mathematics I.A Introduction to linear algebra, analytic geometry of straight lines and planes in E ³ , calculus of functions of one variable | ZK | 4 |
| 2011062 | Matematika II. Open and closed set, boundary in E ⁿ . Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differential operators div (divergence) and curl (rotation). Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, Fubini theorem. Transformation of integrals to polar, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green's theorem. A potential vector field, independence of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector field through a surface. The Gauss-Ostrogradskij theorem. | Z,ZK | 8 |
| 2322029 | Materials Science I. History and present state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, deformation, recrystallization and fracture of materials, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, iron-carbon phase diagram. | KZ | 3 |
| 2012037 | Computer Graphics | KZ | 3 |
| 2131002 | Engineering Design II Principles of ISO GPS (Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface texture, geometrical tolerance, dimensional loops, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice their knowledge from lectures. | Z,ZK | 4 |
| K333038 | Fundamentals of Technology I. Production processes in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technical metals. Production of pig iron and steel. Casting: modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming technology. Hot and cold forging. Free and drop forging. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of welding. Fusion welding: Flame welding and arc welding with coated electrodes. Thermal cutting. | Z | 3 |

Code of the group: 12DTK3P-KMEN

Name of the group: 00 2012 D kmenové 3. semestr TZI kombinované

Requirement credits in the group:

Requirement courses in the group:

Credits in the group: 0

Note on the group:

12B**3P-KMEN #

| 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 |
|---------|---|------------|---------|-------|----------|------|
| 202A041 | Physics I. | ZK | 3 | 0P+0L | * | P |
| 2021025 | Physics II. | Z,ZK | 4 | 1P+2L | 3 | P |
| 201A062 | Mathematics II.A Radka Keslerová | ZK | 4 | 0P+0C | * | P |
| 2011009 | Mathematics III Radka Keslerová, Jiří Holman, Gejza Dohnal, Marta Čertíková, Vladimír Hřiv, Jan Valášek, Luděk Beneš, Tomáš Bodnár, Tomáš Neustupa, Stanislav Kra mar Stanislav Kra mar (Gar.) | Z,ZK | 5 | 2P+2C | * | P |

| | | | | | | |
|---------|---|------|---|-------|---|---|
| 2311101 | Mechanics I. <i>Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Zbyn k Šika, Zbyn k Šika Zbyn k Šika (Gar.)</i> | Z,ZK | 4 | 2P+2C | * | P |
| 2321039 | Materials Science II. <i>Jana Sobotová, Eliška Gal íková, Ji í Cejp, Pavlína Hájková, Jan Kr il, Vladimír Mára, Lucie Pilslová, Ta ana Vacková, Jan Walter, Jana Sobotová Jana Sobotová (Gar.)</i> | Z,ZK | 4 | 2P+2L | * | P |
| 2133013 | Engineering Design III. <i>Jan Kanaval, Jan Hoidekr, František Lopot, David Skalický, Roman Uhlí Jan Kanaval Jan Kanaval (Gar.)</i> | Z | 2 | 0P+2C | Z | P |
| 2012035 | Algorithmization and Programming Fundamentals <i>Ji í Holman, Marta ertíková, Vladimír Hric, Lukáš Hájek, Jan Halama, Vladimír Prokop, Martin Hanek, Jan Karel, Josef Musil, Petr Svá ek Petr Svá ek (Gar.)</i> | KZ | 4 | 1P+2C | * | P |

Characteristics of the courses of this group of Study Plan: Code=12DTK3P-KMEN Name=00 2012 D kmenové 3. semestr TZI kombinované

| | | | | | | |
|---------|---|------|---|---|--|--|
| 202A041 | Physics I. | ZK | 3 | Kinematics and dynamics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic properties of bodies. Oscillations, waves. Fluid mechanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Conductors, semiconductors, insulators. Magnetic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect measurements, regression, measurements of 11 various experiments related to the lectures. | | |
| 2021025 | Physics II. | Z,ZK | 4 | Faraday's law of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic waves. Interaction of radiation with matter. Photoelectric effect. Wave-particle nature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and periodic system of elements. Spectra, x-rays, laser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiments related to the lectures. | | |
| 201A062 | Mathematics II.A | ZK | 4 | Open and closed set, boundary in E^k . Real function of k -variables. Partial derivatives and differentiability. Gradient and directional derivative. Differential operators div (divergence) and curl (rotation). Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, Fubini theorem. Transformation of integrals to polar, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green's theorem. A potential vector field, independence of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector field through a surface. The Gauss-Ostrogradskij theorem. | | |
| 2011009 | Mathematics III | Z,ZK | 5 | An introductory course in ordinary differential equation and infinite series. | | |
| 2311101 | Mechanics I. | Z,ZK | 4 | Mechanics I deals with the basic concepts of statics. There are described the methods of solution of equilibrium of particles and rigid bodies and their systems with and without friction. There are introduced the methods of description of position and motion of particles and rigid bodies. | | |
| 2321039 | Materials Science II. | Z,ZK | 4 | Fundamentals of metallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and thermo-mechanical processing, technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materials. | | |
| 2133013 | Engineering Design III. | Z | 2 | Design of assembly unit (draft drawing, detail drawing, assembly drawing, technical report) | | |
| 2012035 | Algorithmization and Programming Fundamentals | KZ | 4 | Programming in MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Matrices, vectors and operations. Writing M-script. Input and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Systems of linear equations. Scripts and functions. Structure of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. Structures. Algorithmization of simple programs: minimum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of systems of linear equations. | | |

Code of the group: 12DTK4P-KMEN

Name of the group: 00 2012 D kmenové 4. semestr TZI kombinované

Requirement credits in the group:

Requirement courses in the group:

Credits in the group: 0

Note on the group: 12B*K4P-KMEN #

| Code | Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) <i>Tutors, authors and guarantors (gar.)</i> | Completion | Credits | Scope | Semester | Role |
|---------|---|------------|---------|-------|----------|------|
| 202A025 | Physics II.A | ZK | 2 | 0P+0C | * | P |
| 201A009 | Mathematics III.A <i>Stanislav Kra mar</i> | ZK | 2 | 0P+0C | * | P |
| 2311102 | Mechanics II. <i>Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Zbyn k Šika, Václav Bauma Václav Bauma (Gar.)</i> | Z,ZK | 4 | 2P+2C | * | P |
| 2011049 | Numerical Mathematics <i>Radka Keslerová, Ji í Holman, Marta ertíková, Vladimír Hric, Petr Louda, Lukáš Hájek, Jan Valášek, Lud k Beneš, Tomáš Bodnár, Petr Svá ek Petr Svá ek (Gar.)</i> | Z,ZK | 4 | 2P+2C | 4 | P |
| 2133014 | Engineering Design IV. <i>František Lopot František Lopot František Lopot (Gar.)</i> | Z | 2 | 0P+2C | L | P |
| K331068 | Technology I | Z,ZK | 5 | 16B | * | P |

Characteristics of the courses of this group of Study Plan: Code=12DTK4P-KMEN Name=00 2012 D kmenové 4. semestr TZI kombinované

| | | | |
|---------|--|------|---|
| 202A025 | Physics II.A Faraday's law of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic waves. Interaction of radiation with matter. Photoelectric effect. Wave-particle nature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and periodic system of elements. Spectra, x-rays, laser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiments related to the lectures. | ZK | 2 |
| 201A009 | Mathematics III.A | ZK | 2 |
| 2311102 | Mechanics II. Kinematics of point and of rigid bodies. Transformation matrix. Kinematics of concurrent movements. Motion: translation, rotation, general planar motion, spherical motion, screw motion, general spatial motion. Composition of mechanisms. Basic planar mechanisms. Analytical methods in kinematics of mechanisms - Trigonometric and vector method. Graphical methods in kinematics. Basic theory of gearing. Transmission mechanisms with gears. Strutting and seeing in mechanisms. Cable mechanisms. | Z,ZK | 4 |
| 2011049 | Numerical Mathematics Numerical solution of systems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical solution of ordinary differential equations, initial and boundary value problems. Numerical solution of basic linear partial differential equations by finite difference method. | Z,ZK | 4 |
| 2133014 | Engineering Design IV. | Z | 2 |
| K331068 | Technology I Foundry properties of metals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of forming processes. Semi-products, heating-up. Cutting. Cold and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. Brasing. Surface treatment. | Z,ZK | 5 |

Code of the group: 12DTK5P-KMEN

Name of the group: 00 2012 D kmenové 5. semestr TZI kombinované

Requirement credits in the group:

Requirement courses in the group:

Credits in the group: 0

Note on the group:

12B*K5P-KMEN #

| 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 |
|---------|---|------------|---------|----------|----------|------|
| 2131512 | Machine Elements and Mechanisms I. <i>František Lopot</i> | Z,ZK | 6 | 3P+2C | * | P |
| 2141504 | Electric Circuits and Electronics <i>Stanislava Papežová, Jan Chyský, Jaroslav Novák, Lukáš Novák Zuzana Sedlecká Jan Chyský (Gar.)</i> | Z,ZK | 4 | 2P+0C+1L | * | P |
| 2311107 | Mechanics III. <i>Tomáš Vampola</i> | Z,ZK | 7 | 2P+3C | 5 | P |
| 2372083 | Measurement in Engineering <i>Martin Novák, Vladimír Hlavá Martin Novák Martin Novák (Gar.)</i> | KZ | 3 | 1P+0C+2L | * | P |
| K341014 | Technology II. | Z,ZK | 5 | 8KP+8KC | * | P |
| 2153005 | Fundamentals of Energy Conversions | Z | 1 | 1P+1C | * | P |
| 2383001 | Fundamentals of Law <i>Václav Pilík Václav Pilík (Gar.)</i> | Z | 2 | 1P+1C | * | P |

Characteristics of the courses of this group of Study Plan: Code=12DTK5P-KMEN Name=00 2012 D kmenové 5. semestr TZI kombinované

| | | | |
|---------|---|------|---|
| 2131512 | Machine Elements and Mechanisms I. Joints and joining elements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, keys). Mechanical transmissions (belt, chain, friction, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded connecting bolts, clamped, pressed, splined and key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple assembly units is also indispensable seminar work. | Z,ZK | 6 |
| 2141504 | Electric Circuits and Electronics Introduction into theory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of energy. EI. Power and Energy. Introduction into electronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, microprocessor. | Z,ZK | 4 |
| 2311107 | Mechanics III. Mechanics III deals with the basic concepts of dynamics. Methods of solving the dynamics of mass particle and body motion and their systems are described. Methods for describing and solving vibrations of systems. | Z,ZK | 7 |
| 2372083 | Measurement in Engineering Overview of sensor principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and verification of measurement instruments. | KZ | 3 |
| K341014 | Technology II. | Z,ZK | 5 |
| 2153005 | Fundamentals of Energy Conversions | Z | 1 |
| 2383001 | Fundamentals of Law Basic orientation in legal system is a necessary part of professional equipment of each expert with university degree. The aim of this course is to provide a view into the Czech Legal Order, particular sources of law and system of law (branch of law), using tutorials, lectures, specialised literature and significant legal regulations. It is necessary for students to know our legal institutions, that will be regularly in touch with, especially during their professional career and to learn how to work with the collection of laws. At the same time the course leads students to know some practical habits and processes while putting the law on, especially in domain of contracts and other important legal relationships and to make them ready to prepare professional presentations and to understand basic structures between law and engineering | Z | 2 |

Code of the group: 12DTK6P-KMEN

Name of the group: 00 2012 D kmenové 6. semestr TZI kombinované

Requirement credits in the group:
 Requirement courses in the group:
 Credits in the group: 0
 Note on the group:

12B**6P-KMEN #

| 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 |
|---------|--|------------|---------|-----------|----------|------|
| 2371047 | Automatic Control Milan Hofreiter, R žena Petrová, Tomáš Vyhřídál, Jaromír Fišer Tomáš Vyhřídál Tomáš Vyhřídál (Gar.) | Z,ZK | 5 | 3P+15C+0E | * | P |
| 2131026 | Machine Elements and Mechanisms II Eliška Čézová, Jan Flek, Jan Kanaval, Karel Petr, Zdeněk ešpíro, Martin Dub, František Lopot, Jiří Houkal František Lopot František Lopot (Gar.) | ZK | 3 | 3P+0C | * | P |
| 2141505 | Electrical machines and drives Jan Chyský, Jaroslav Novák Jaroslav Novák Jaroslav Novák (Gar.) | Z,ZK | 4 | 2P+0C+14L | * | P |
| 2133025 | Design František Lopot František Lopot František Lopot (Gar.) | Z | 4 | 0P+4C | * | P |
| 2381054 | Management and Economics of the Enterprise Theodor Beran, Št pánka Uli ná, Vladimír Brdek, Ladislav Vaniš, Petr Žemli ka Theodor Beran Theodor Beran (Gar.) | Z,ZK | 4 | 2P+2C | * | P |
| 2181026 | Momentum, Mass and Heat Transfer Martin Dostál, Vojtěch B lohavl, Stanislav Solna, Jan Sko ilas, Tomáš Jirout, Adam Krupica, Jiří Moravec Tomáš Jirout Tomáš Jirout (Gar.) | Z,ZK | 5 | 3P+1C | * | P |

Characteristics of the courses of this group of Study Plan: Code=12DTK6P-KMEN Name=00 2012 D kmenové 6. semestr TZI kombinované

| | | | | |
|---------|--|------|---|---|
| 2371047 | Automatic Control | Z,ZK | 5 | Automatic controllers are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automatic control theory and practice like transfer functions, open versus closed loop control, design of controllers and frequency based analysis of control systems. The course also concentrates on logic control and control via programmable logic controllers. Some seminars are arranged in laboratories where practical skills and control engineering methods are trained. Students begin to work with MATLAB software as a common platform of control engineers. |
| 2131026 | Machine Elements and Mechanisms II | ZK | 3 | Preliminary design, design calculations and application of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, pipelines and their accessories and fittings. |
| 2141505 | Electrical machines and drives | Z,ZK | 4 | AC el. circuits. Electrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transformer, principle, construction, 3-phase transformer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-torque characteristic, speed control. Synchronous machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characteristic. Low-voltage instruments. Low-voltage distribution system. |
| 2133025 | Design | Z | 4 | Design, design calculations and their applications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft couplings and clutches. |
| 2381054 | Management and Economics of the Enterprise | Z,ZK | 4 | The subject is intended to teach the students of the Faculty of Mechanical Engineering the basic economic starting points necessary for technical reasoning and to help them understand the basic relationships between economic quantities costs - revenues, expenses - incomes and other basic economic terms. The goal is for the audience to be able to communicate with economists in organizations. every product or service is valued at a selling price and therefore it is necessary to understand the simple costing of products and services. Every technician will encounter reports and should understand the basic structure of financial statements. As a future manager, he will compile and approve the operating budget. In the field of management, they will learn basic managerial functions and their content. Furthermore, they will learn how to use network analysis in project management. For decision-making purposes, they will learn the applications of multi-criteria decision-making. The basics of marketing and strategic management will be introduced. |
| 2181026 | Momentum, Mass and Heat Transfer | Z,ZK | 5 | Fundamentals of transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical energy equation. Residence time distributions in continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and thermal radiation. Multicomponent systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer. |

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 10

The role of the block: PV

Code of the group: 12B**1Q-HUM

Name of the group: 03 2012 bakalá ské povinn volitelné humanitární

Requirement credits in the group: In this group you have to gain at least 2 credits (at most 6)

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

Credits in the group: 2

Note on the group: Ze skupiny humanitních předmětů nutno je d e n absolvovat

| 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 |
|---------|---|------------|---------|-------|----------|------|
| 2383009 | Communication and Dealing with People Vladimír Brdek, Jan Horejc Jan Horejc Jan Horejc (Gar.) | Z | 2 | 1P+1C | * | PV |

Characteristics of the courses of this group of Study Plan: Code=12B1Q-HUM Name=03 2012 bakalářské povinné volitelné humanitární**

| | | | |
|---------|---------------------------------------|---|---|
| 2383009 | Communication and Dealing with People | Z | 2 |
|---------|---------------------------------------|---|---|

Human communication represents an irreplaceable phenomenon in human activity, as it is present in practically all of his activities. The same applies (with specific modifications) to the activities of managers. So you can't not communicate - you can only communicate badly, well and excellently.

Code of the group: 12B**4Q-BZJ S+T

Name of the group: 08 2012 bakalářské zkoušky z jazyk pro STR a TZIS

Requirement credits in the group: In this group you have to gain at least 2 credits (at most 10)

Requirement courses in the group: In this group you have to complete at least 1 course (at most 5)

Credits in the group: 2

Note on the group: Součástí tohoto bakalářského studijního programu je povinnost vykonat zkoušku z jednoho cizího jazyka. Student ji může vykonat kdykoliv v průběhu studia. Administrativně je předmět přiřazen ke studijnímu plánu čtvrtého semestru druhého ročníku, neboť se předpokládá, že si student během předcházejících semestrů nejprve doplňuje v jazykových kurzech (volitelných předmětech) jazykové znalosti zejména v oblasti odborné terminologie

| 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 |
|---------|---|------------|---------|-------|----------|------|
| 2041061 | English-Bachelor Exam Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová, Michele Le Blanc Ilona Šimice (Gar.) | Z,ZK | 2 | 0P+2C | * | PV |
| 2041063 | French - Bachelor Exam /FME Michaela Schusová, Dušana Jirovská Eliška Vítková Dušana Jirovská (Gar.) | Z,ZK | 2 | 0P+2C | * | PV |
| 2041062 | German - Bachelor Exam / FME Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Jaroslava Kommová Jaroslava Kommová (Gar.) | Z,ZK | 2 | 0P+2C | * | PV |
| 2041065 | Russian - Bachelor Exam / FME Michaela Schusová, Hana Volejníková, Dušana Jirovská Eliška Vítková Dušana Jirovská (Gar.) | Z,ZK | 2 | 0P+2C | * | PV |
| 2041064 | Spanish - Bachelor Exam / FME Michaela Schusová, Jaime Andrés Villagómez Eliška Vítková Jaime Andrés Villagómez (Gar.) | Z,ZK | 2 | 0P+2C | * | PV |

Characteristics of the courses of this group of Study Plan: Code=12B4Q-BZJ S+T Name=08 2012 bakalářské zkoušky z jazyk pro STR a TZIS**

| | | | |
|---------|-----------------------|------|---|
| 2041061 | English-Bachelor Exam | Z,ZK | 2 |
|---------|-----------------------|------|---|

Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.

| | | | |
|---------|-----------------------------|------|---|
| 2041063 | French - Bachelor Exam /FME | Z,ZK | 2 |
|---------|-----------------------------|------|---|

Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.

| | | | |
|---------|------------------------------|------|---|
| 2041062 | German - Bachelor Exam / FME | Z,ZK | 2 |
|---------|------------------------------|------|---|

Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.

| | | | |
|---------|-------------------------------|------|---|
| 2041065 | Russian - Bachelor Exam / FME | Z,ZK | 2 |
|---------|-------------------------------|------|---|

Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.

| | | | |
|---------|-------------------------------|------|---|
| 2041064 | Spanish - Bachelor Exam / FME | Z,ZK | 2 |
|---------|-------------------------------|------|---|

Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.

Code of the group: 12BT*6Q-OP

Name of the group: 10 2012 BTZI 6. sem oborové projekty

Requirement credits in the group: In this group you have to gain 2 credits

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

Credits in the group: 2

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 |
|---------|---|------------|---------|-------|----------|------|
| 2012091 | Project Jiří Fürst | KZ | 2 | 0P+2C | * | PV |
| 2152091 | Departmental Project | KZ | 2 | 0P+2C | * | PV |
| 2182091 | Project Tomáš Jirout | KZ | 2 | 0P+2C | * | PV |

| | | | | | | |
|---------|--|----|---|-------|---|----|
| 2322091 | Project Jana Sobotová, Jiří Cejp, Pavlína Hájková, Jan Král, Vladimír Mára, Tereza Vacková, Jakub Horník, Ladislav Cvrček, Elena Ižmarová, Jana Sobotová Jana Sobotová (Gar.) | KZ | 2 | 0P+2C | * | PV |
| 2332091 | Project | KZ | 2 | 0P+2C | * | PV |
| 2342091 | Project | KZ | 2 | 0P+2C | * | PV |
| 2352091 | Specialization Project | KZ | 2 | 2C | * | PV |
| 2362091 | Project | KZ | 2 | 0P+2C | * | PV |
| 2372091 | Project | KZ | 2 | 0P+2C | * | PV |

Characteristics of the courses of this group of Study Plan: Code=12BT*6Q-OP Name=10 2012 BTZI 6. sem oborové projekty

| | | | |
|---------|---|----|---|
| 2012091 | Project | KZ | 2 |
| 2152091 | Departmental Project | KZ | 2 |
| 2182091 | Project Absolvent se seznámí se základy oboru Procesní technika. | KZ | 2 |
| 2322091 | Project On the basis of the preliminary submission of a bachelor thesis the students, under supervision of their supervisors, prepare a review summarizing and evaluating the studied literature with particular emphasis on experimental technologies which can be applied in their bachelor theses. They can also mention a planned experiment or evaluate hitherto obtained knowledge or results. | KZ | 2 |
| 2332091 | Project | KZ | 2 |
| 2342091 | Project Work on specialized tasks. | KZ | 2 |
| 2352091 | Specialization Project | KZ | 2 |
| 2362091 | Project | KZ | 2 |
| 2372091 | Project An individual project from the branch of specialisation, which student will study on his/her magister level | KZ | 2 |

Code of the group: 12BT*6Q-BP

Name of the group: 11 2012 BTZI 6. sem bakalářské práce

Requirement credits in the group: In this group you have to gain 4 credits

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

Credits in the group: 4

Note on the group: poznámka 12BT*6Q-BP 2012 BTZI 6. sem bakalářské práce

| 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 |
|---------|---|------------|---------|-------|----------|------|
| 2213991 | Bachelor Thesis | Z | 4 | 0P+8C | * | PV |
| 2373991 | Bachelor Thesis | Z | 4 | 0P+0C | * | PV |
| 2363991 | Bachelor Thesis | Z | 4 | 0P+0C | * | PV |
| 2153991 | Bachelor Thesis | Z | 4 | 0P+0C | * | PV |
| 2323991 | Bachelor thesis | Z | 4 | 0P+6C | * | PV |
| 2183991 | Bachelor Thesis Tomáš Jirout | Z | 4 | 0P+0C | * | PV |
| 2333991 | Bachelor Thesis | Z | 4 | 0P+0C | * | PV |
| 2013991 | Bachelor Thesis | Z | 4 | 0P+0C | * | PV |

Characteristics of the courses of this group of Study Plan: Code=12BT*6Q-BP Name=11 2012 BTZI 6. sem bakalářské práce

| | | | |
|---------|---|---|---|
| 2213991 | Bachelor Thesis | Z | 4 |
| 2373991 | Bachelor Thesis Each student will solve his individual theme under guiding of his individual supervising department specialist. Result is his/her bachelor thesis. | Z | 4 |
| 2363991 | Bachelor Thesis | Z | 4 |
| 2153991 | Bachelor Thesis | Z | 4 |
| 2323991 | Bachelor thesis Development of the bachelor thesis on an assignment under the supervision. | Z | 4 |
| 2183991 | Bachelor Thesis | Z | 4 |
| 2333991 | Bachelor Thesis | Z | 4 |
| 2013991 | Bachelor Thesis | Z | 4 |

Name of the block: Elective courses

Minimal number of credits of the block: 0

The role of the block: V

Code of the group: 12B**1V-DOP SEMI

Name of the group: 05 2012 doporu ené seminá e

Requirement credits in the group:

Requirement courses in the group:

Credits in the group: 0

Note on the group: Pokud si chce student své dosud získané znalosti (například z matematiky, fyziky, cizích jazyků atd.) doplnit, může si zapsat některý z volitelných předmětů, které příslušné ústavy pro 1. semestr (zimní) vypisují. Doporučujeme zejména předměty uvedené v této skupině

| 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 |
|---------|---|------------|---------|-------|----------|------|
| 2026016 | Physics - Seminar | Z | 2 | 0P+2C | 1 | v |
| 2016007 | Mathematics I. - Seminar Radka Keslerová, Hynek ezní ek, Olga Majlingová Radka Keslerová Gejza Dohnal (Gar.) | Z | 2 | 0P+2C | 1 | v |

Characteristics of the courses of this group of Study Plan: Code=12B**1V-DOP SEMI Name=05 2012 doporu ené seminá e

| | | | |
|---------|--|---|---|
| 2026016 | Physics - Seminar The subject is mainly meant for high-school students for repetition of high-school physics. | Z | 2 |
| 2016007 | Mathematics I. - Seminar | Z | 2 |

Code of the group: 12B**1V-DOP ZJK

Name of the group: 06 2012 doporu ené základní jazykové kurzy a prezentace

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 |
|---------|---|------------|---------|-------|----------|------|
| 2046155 | English Conversation Ilona Šimice, Michele Le Blanc Ilona Šimice Michele Le Blanc (Gar.) | Z | 2 | 0P+2C | * | v |
| 2046156 | English Conversation Ilona Šimice, Michele Le Blanc | Z | 2 | 0P+2C | L | v |
| 2046071 | English - Lower Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová | Z | 2 | 0P+2C | L | v |
| 2046070 | English - Lower Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.) | Z | 2 | 0P+2C | Z | v |
| 2046074 | English - Advanced Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová, Michele Le Blanc Michaela Schusová Ilona Šimice (Gar.) | Z | 2 | 0P+2C | Z | v |
| 2046075 | English - Advanced Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová, Michele Le Blanc Ilona Šimice Ilona Šimice (Gar.) | Z | 2 | 0P+2C | L | v |
| 2046072 | English - Upper Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.) | Z | 2 | 0P+2C | Z | v |
| 2046073 | English - Upper Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Ilona Šimice Ilona Šimice (Gar.) | Z | 2 | 0P+2C | L | v |
| 2046068 | English - Beginners Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.) | Z | 2 | 0P+2C | Z | v |
| 2046069 | English - Beginners Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Ilona Šimice | Z | 2 | 0P+2C | L | v |
| 2046126 | Czech Lower Intermediate Jaroslava Kormmová | Z | 2 | 0P+2C | L | v |
| 2046125 | Czech Lower Intermediate Jaroslava Kormmová | Z | 2 | 0P+2C | Z | v |
| 2046118 | Czech -Advanced Jaroslava Kormmová | Z | 2 | 0P+2C | L | v |
| 2046117 | Czech -Advanced Jaroslava Kormmová | Z | 2 | 0P+2C | Z | v |
| 2046127 | Czech - Upper Intermediate Jaroslava Kormmová | Z | 2 | 0P+2C | Z | v |

| | | | | | | |
|---------|--|------|---|-------|---|---|
| 2046128 | Czech - Upper Intermediate <i>Jaroslava Kormmová</i> | Z | 2 | 0P+2C | L | v |
| 2046119 | Czech Language for Beginners I. <i>Jaroslava Kormmová</i> | Z | 2 | 0P+2C | Z | v |
| 2046120 | Czech Language for Beginners II. <i>Jaroslava Kormmová</i> | Z | 2 | 0P+2C | L | v |
| 2046086 | French - Lower Intermediate Course <i>Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)</i> | Z | 2 | 0P+2C | Z | v |
| 2046087 | French - Lower Intermediate Course <i>Michaela Schusová, Dušana Jirovská Dušana Jirovská Dušana Jirovská (Gar.)</i> | Z | 2 | 0P+2C | L | v |
| 2046091 | French - Advanced <i>Michaela Schusová, Dušana Jirovská Dušana Jirovská Dušana Jirovská (Gar.)</i> | Z | 2 | 0P+2C | L | v |
| 2046090 | French - Advanced <i>Michaela Schusová, Dušana Jirovská, Eliška Vítková Eliška Vítková Eliška Vítková (Gar.)</i> | Z | 2 | 0P+2C | Z | v |
| 2046089 | French - Upper Intermediate <i>Michaela Schusová, Dušana Jirovská Dušana Jirovská Dušana Jirovská (Gar.)</i> | Z | 2 | 0P+2C | L | v |
| 2046088 | French - Upper Intermediate <i>Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)</i> | Z | 2 | 0P+2C | Z | v |
| 2046084 | French - Beginners <i>Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)</i> | Z | 2 | 0P+2C | Z | v |
| 2046085 | French - Beginners' Course <i>Michaela Schusová, Dušana Jirovská Michaela Schusová Dušana Jirovská (Gar.)</i> | Z | 2 | 0P+2C | L | v |
| 2146060 | Indonesian Language Course for Exchange | Z | 2 | 0P+2C | * | v |
| 2146061 | Technical Indonesian - Course I. | Z | 2 | 0P+2C | Z | v |
| 2144062 | Technical Indonesian - Course II. | Z,ZK | 3 | 1P+2C | L | v |
| 2046078 | German - Lower Intermediate Course <i>Michaela Schusová, Jaroslava Kormmová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)</i> | Z | 2 | 0P+2C | Z | v |
| 2046079 | German - Lower Intermediate Course <i>Michaela Schusová, Jaroslava Kormmová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kormmová (Gar.)</i> | Z | 2 | 0P+2C | L | v |
| 2046083 | German - Advanced Course <i>Michaela Schusová, Jaroslava Kormmová, Eliška Vítková, Petr Laurich Jaroslava Kormmová Jaroslava Kormmová (Gar.)</i> | Z | 2 | 0P+2C | L | v |
| 2046082 | German - Advanced Course <i>Michaela Schusová, Jaroslava Kormmová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)</i> | Z | 2 | 0P+2C | Z | v |
| 2046081 | German - Upper Intermediate Course <i>Michaela Schusová, Jaroslava Kormmová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kormmová (Gar.)</i> | Z | 2 | 0P+2C | L | v |
| 2046080 | German - Upper Intermediate Course <i>Michaela Schusová, Jaroslava Kormmová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)</i> | Z | 2 | 0P+2C | Z | v |
| 2046076 | German - Beginners <i>Michaela Schusová, Jaroslava Kormmová, Eliška Vítková, Petr Laurich Michaela Schusová Petr Laurich (Gar.)</i> | Z | 2 | 0P+2C | Z | v |
| 2046077 | German - Beginners <i>Michaela Schusová, Jaroslava Kormmová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kormmová (Gar.)</i> | Z | 2 | 0P+2C | L | v |
| 2046161 | Presentations in English <i>Michaela Schusová</i> | Z | 2 | 0P+2C | * | v |
| 2046166 | Presentations in Czech <i>Jaroslava Kormmová</i> | Z | 2 | 0P+2C | * | v |
| 2046162 | Presentations in German <i>Jaroslava Kormmová, Eliška Vítková, Petr Laurich Jaroslava Kormmová Jaroslava Kormmová (Gar.)</i> | Z | 2 | 0P+2C | * | v |
| 2046164 | Presentations in Russian <i>Dušana Jirovská</i> | Z | 2 | 0P+2C | * | v |
| 2046163 | Presentations in French language <i>Dušana Jirovská Dušana Jirovská</i> | Z | 2 | 0P+2C | * | v |
| 2046165 | Presentations in Spanish <i>Eliška Vítková</i> | Z | 2 | 0P+2C | * | v |
| 2046137 | Russian - Lower Intermediate Course <i>Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)</i> | Z | 2 | 0P+2C | Z | v |
| 2046138 | Russian - Lower Intermediate Course <i>Michaela Schusová, Hana Volejníková, Dušana Jirovská Dušana Jirovská</i> | Z | 2 | 0P+2C | L | v |
| 2046141 | Russian - Advanced <i>Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)</i> | Z | 2 | 0P+2C | Z | v |

| | | | | | | |
|---------|--|---|---|-------|---|---|
| 2046142 | Russian - Advanced <i>Michaela Schusová, Hana Volejníková, Dušana Jirovská Dušana Jirovská</i> | Z | 2 | 0P+2C | L | v |
| 2046140 | Russian - Upper Intermediate <i>Michaela Schusová, Hana Volejníková, Dušana Jirovská Dušana Jirovská</i> | Z | 2 | 0P+2C | L | v |
| 2046139 | Russian - Upper Intermediate <i>Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková</i> Michaela Schusová <i>Michaela Schusová (Gar.)</i> | Z | 2 | 0P+2C | Z | v |
| 2046136 | Russian - Beginners <i>Michaela Schusová, Hana Volejníková, Dušana Jirovská Dušana Jirovská</i> | Z | 2 | 0P+2C | L | v |
| 2046135 | Russian - Beginners <i>Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková</i> Michaela Schusová <i>Michaela Schusová (Gar.)</i> | Z | 2 | 0P+2C | Z | v |
| 2046099 | Spanish - Lower Intermediate <i>Michaela Schusová, Jaime Andrés Villagómez Eliška Vítková Jaime Andrés Villagómez (Gar.)</i> | Z | 2 | 0P+2C | L | v |
| 2046098 | Spanish - Lower Intermediate <i>Michaela Schusová, Eliška Vítková, Jaime Andrés Villagómez Eliška Vítková</i> <i>Eliška Vítková (Gar.)</i> | Z | 2 | 0P+2C | Z | v |
| 2046096 | Spanish - Beginners <i>Michaela Schusová, Eliška Vítková, Jaime Andrés Villagómez Eliška Vítková</i> <i>Eliška Vítková (Gar.)</i> | Z | 2 | 0P+2C | Z | v |
| 2046097 | Spanish - Beginners <i>Michaela Schusová, Jaime Andrés Villagómez Jaime Andrés Villagómez</i> <i>Jaime Andrés Villagómez (Gar.)</i> | Z | 2 | 0P+2C | L | v |

Characteristics of the courses of this group of Study Plan: Code=12B1V-DOP ZJK Name=06 2012 doporu ené základní jazykové kurzy a prezentace**

| | | | | | | |
|---------|--|---|---|--|--|--|
| 2046155 | English Conversation Improving communicative skills in speaking on general topics and general technical topics. | Z | 2 | | | |
| 2046156 | English Conversation Improving communicative skills in speaking on general topics and general technical topics. | Z | 2 | | | |
| 2046071 | English - Lower Intermediate Mapped to the Common European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school or at his/her free time and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improvement of professional language. | Z | 2 | | | |
| 2046070 | English - Lower Intermediate Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2. | Z | 2 | | | |
| 2046074 | English - Advanced The aim: comprehension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level. B1 - B2. | Z | 2 | | | |
| 2046075 | English - Advanced Mapped to the Common European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level. | Z | 2 | | | |
| 2046072 | English - Upper Intermediate The aim is to extend language skills taking into consideration professional English and common professional terminology. Comprehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1. | Z | 2 | | | |
| 2046073 | English - Upper Intermediate Mapped to the Common European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional English and common professional terminology. Comprehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. | Z | 2 | | | |
| 2046068 | English - Beginners Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional language). A1 | Z | 2 | | | |
| 2046069 | English - Beginners Mapped to the Common European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional language). | Z | 2 | | | |
| 2046126 | Czech Lower Intermediate Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | Z | 2 | | | |
| 2046125 | Czech Lower Intermediate Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | Z | 2 | | | |
| 2046118 | Czech -Advanced Mapped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czech without great difficulties and active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehension of popular-scientific and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level. | Z | 2 | | | |
| 2046117 | Czech -Advanced Comprehension of spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning current issues and popular scientific and technical articles. | Z | 2 | | | |
| 2046127 | Czech - Upper Intermediate Understanding standard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding general and technical texts. | Z | 2 | | | |

| | | | |
|--|---|------|---|
| 2046128 | Czech - Upper Intermediate | Z | 2 |
| Mapped to the Common European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional Czech and common professional terminology. Comprehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening the knowledge technical language. | | | |
| 2046119 | Czech Language for Beginners I. | Z | 2 |
| Basic vocabulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professional language) | | | |
| 2046120 | Czech Language for Beginners II. | Z | 2 |
| Mapped to the Common European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional language). | | | |
| 2046086 | French - Lower Intermediate Course | Z | 2 |
| Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | | | |
| 2046087 | French - Lower Intermediate Course | Z | 2 |
| Mapped to the level of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | | | |
| 2046091 | French - Advanced | Z | 2 |
| Mapped to the level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning current issues and popular scientific and technical articles. | | | |
| 2046090 | French - Advanced | Z | 2 |
| Comprehension of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning current issues and popular scientific and technical articles. | | | |
| 2046089 | French - Upper Intermediate | Z | 2 |
| Mapped to the level of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students comes across at work, at school, during free time, and talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding general and technical texts. | | | |
| 2046088 | French - Upper Intermediate | Z | 2 |
| Understanding standard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding general and technical texts. | | | |
| 2046084 | French - Beginners | Z | 2 |
| Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | | | |
| 2046085 | French - Beginners' Course | Z | 2 |
| Mapped to the level of Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | | | |
| 2146060 | Indonesian Language Course for Exchange | Z | 2 |
| Basic of Indonesian Language for Student Exchange Program to Indonesia | | | |
| 2146061 | Technical Indonesian - Course I. | Z | 2 |
| Second part of Indonesian Language for Student Exchange Program to Indonesia | | | |
| 2144062 | Technical Indonesian - Course II. | Z,ZK | 3 |
| Basic of Indonesian Language for Student Exchange Program to Indonesia | | | |
| 2046078 | German - Lower Intermediate Course | Z | 2 |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | | | |
| 2046079 | German - Lower Intermediate Course | Z | 2 |
| Mapped to the level of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improvement of professional language. | | | |
| 2046083 | German - Advanced Course | Z | 2 |
| Mapped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in German without great difficulties and active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehension of popular-scientific and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level. | | | |
| 2046082 | German - Advanced Course | Z | 2 |
| Comprehension of spoken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning current issues and popular scientific and technical articles. | | | |
| 2046081 | German - Upper Intermediate Course | Z | 2 |
| Mapped to the level of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students comes across at work, at school, during free time, and talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding general and technical texts. | | | |
| 2046080 | German - Upper Intermediate Course | Z | 2 |
| Understanding standard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding general and technical texts. | | | |
| 2046076 | German - Beginners | Z | 2 |
| Basic vocabulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professional language) | | | |
| 2046077 | German - Beginners | Z | 2 |
| Mapped to the level Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional language). | | | |
| 2046161 | Presentations in English | Z | 2 |
| Preparing students to present in English on technical topics, with a possible co-operation with specialized departments. | | | |
| 2046166 | Presentations in Czech | Z | 2 |
| Preparing students to give presentations in English on technical topics, with a possible co-operation with specialized departments. | | | |
| 2046162 | Presentations in German | Z | 2 |
| Preparation for presenting technical topics in German, possibly in cooperation with specialized departments. | | | |
| 2046164 | Presentations in Russian | Z | 2 |
| Preparation for presenting technical topics in Russian, possibly in cooperation with specialized departments. | | | |

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| 2046163 | Presentations in French language Preparation for presenting technical topics in French, possibly in cooperation with specialized departments. | Z | 2 |
| 2046165 | Presentations in Spanish Preparation for presenting technical topics in Spanish, possibly in cooperation with specialized departments. | Z | 2 |
| 2046137 | Russian - Lower Intermediate Course Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | Z | 2 |
| 2046138 | Russian - Lower Intermediate Course Mapped to the level of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | Z | 2 |
| 2046141 | Russian - Advanced Comprehension of spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning current issues and popular scientific and technical articles. | Z | 2 |
| 2046142 | Russian - Advanced Mapped to the level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning current issues and popular scientific and technical articles. | Z | 2 |
| 2046140 | Russian - Upper Intermediate Mapped to the level of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding general and technical texts. | Z | 2 |
| 2046139 | Russian - Upper Intermediate Understanding standard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding general and technical texts. | Z | 2 |
| 2046136 | Russian - Beginners Mapped to the level of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professional language) | Z | 2 |
| 2046135 | Russian - Beginners Basic vocabulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professional language) | Z | 2 |
| 2046099 | Spanish - Lower Intermediate Mapped to the level of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | Z | 2 |
| 2046098 | Spanish - Lower Intermediate Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | Z | 2 |
| 2046096 | Spanish - Beginners Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | Z | 2 |
| 2046097 | Spanish - Beginners Mapped to the Common European Framework of Reference Level A1. Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | Z | 2 |

List of courses of this pass:

| Code | Name of the course | Completion | Credits |
|---------|---|------------|---------|
| 2011009 | Mathematics III An introductory course in ordinary differential equation and infinite series. | Z,ZK | 5 |
| 2011021 | Constructive Geometry The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations. | Z,ZK | 6 |
| 2011049 | Numerical Mathematics Numerical solution of systems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical solution of ordinary differential equations, initial and boundary value problems. Numerical solution of basic linear partial differential equations by finite difference method. | Z,ZK | 4 |
| 2011056 | Mathematics I In the course, greater emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connections between concepts. Students will also get to know the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: eigenvalues and eigenvectors of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions. | Z,ZK | 8 |
| 2011062 | Matematika II. Open and closed set, boundary in E^k . Real function of k -variables. Partial derivatives and differentiability. Gradient and directional derivative. Differential operators div (divergence) and curl (rotation). Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, Fubini theorem. Transformation of integrals to polar, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green's theorem. A potential vector field, independence of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector field through a surface. The Gauss-Ostrogradskij theorem. | Z,ZK | 8 |
| 2012035 | Algorithmization and Programming Fundamentals Programming in MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Matrices, vectors and operations. Writing M-script. Input and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Systems of linear equations. Scripts and functions. Structure of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. Structures. Algorithmization of simple programs: minimum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of systems of linear equations. | KZ | 4 |

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| 2012037 | Computer Graphics | KZ | 3 |
| 2012091 | Project | KZ | 2 |
| 2013991 | Bachelor Thesis | Z | 4 |
| 2016007 | Mathematics I. - Seminar | Z | 2 |
| 201A009 | Mathematics III.A | ZK | 2 |
| 201A021 | Constructive Geometry A | ZK | 3 |
| | The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations. | | |
| 201A056 | Mathematics I.A | ZK | 4 |
| | Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable | | |
| 201A062 | Mathematics II.A | ZK | 4 |
| | Open and closed set, boundary in E^k . Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differential operators div (divergence) and curl (rotation). Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, Fubini theorem. Transformation of integrals to polar, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green's theorem. A potential vector field, independence of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector field through a surface. The Gauss-Ostrogradskij theorem. | | |
| 2021025 | Physics II. | Z,ZK | 4 |
| | Faraday's law of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic waves. Interaction of radiation with matter. Photoelectric effect. Wave-particle nature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and periodic system of elements. Spectra, x-rays, laser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiments related to the lectures. | | |
| 2021041 | Physics I. | Z,ZK | 7 |
| | Kinematics and dynamics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic properties of bodies. Oscillations, waves. Fluid mechanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Conductors, semiconductors, insulators. Magnetic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect measurements, regression, measurements of 11 various experiments related to the lectures. | | |
| 2026016 | Physics - Seminar | Z | 2 |
| | The subject is mainly meant for high-school students for repetition of high-school physics. | | |
| 202A025 | Physics II.A | ZK | 2 |
| | Faraday's law of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic waves. Interaction of radiation with matter. Photoelectric effect. Wave-particle nature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and periodic system of elements. Spectra, x-rays, laser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiments related to the lectures. | | |
| 202A041 | Physics I. | ZK | 3 |
| | Kinematics and dynamics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic properties of bodies. Oscillations, waves. Fluid mechanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Conductors, semiconductors, insulators. Magnetic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect measurements, regression, measurements of 11 various experiments related to the lectures. | | |
| 2041061 | English-Bachelor Exam | Z,ZK | 2 |
| | Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. | | |
| 2041062 | German - Bachelor Exam / FME | Z,ZK | 2 |
| | Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. | | |
| 2041063 | French - Bachelor Exam /FME | Z,ZK | 2 |
| | Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. | | |
| 2041064 | Spanish - Bachelor Exam / FME | Z,ZK | 2 |
| | Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. | | |
| 2041065 | Russian - Bachelor Exam / FME | Z,ZK | 2 |
| | Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. | | |
| 2046068 | English - Beginners | Z | 2 |
| | Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional language). A1 | | |
| 2046069 | English - Beginners | Z | 2 |
| | Mapped to the Common European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional language). | | |
| 2046070 | English - Lower Intermediate | Z | 2 |
| | Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2. | | |
| 2046071 | English - Lower Intermediate | Z | 2 |
| | Mapped to the Common European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school or at his/her free time and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improvement of professional language. | | |
| 2046072 | English - Upper Intermediate | Z | 2 |
| | The aim is to extend language skills taking into consideration professional English and common professional terminology. Comprehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1. | | |
| 2046073 | English - Upper Intermediate | Z | 2 |
| | Mapped to the Common European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional English and common professional terminology. Comprehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. | | |

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| 2046074 | English - Advanced | Z | 2 |
| The aim: comprehension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level. B1 - B2. | | | |
| 2046075 | English - Advanced | Z | 2 |
| Mapped to the Common European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level. | | | |
| 2046076 | German - Beginners | Z | 2 |
| Basic vocabulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professional language) | | | |
| 2046077 | German - Beginners | Z | 2 |
| Mapped to the level Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional language). | | | |
| 2046078 | German - Lower Intermediate Course | Z | 2 |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | | | |
| 2046079 | German - Lower Intermediate Course | Z | 2 |
| Mapped to the level of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improvement of professional language. | | | |
| 2046080 | German - Upper Intermediate Course | Z | 2 |
| Understanding standard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding general and technical texts. | | | |
| 2046081 | German - Upper Intermediate Course | Z | 2 |
| Mapped to the level of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar topics, that a students comes across at work, at school, during free time, and talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding general and technical texts. | | | |
| 2046082 | German - Advanced Course | Z | 2 |
| Comprehension of spoken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical articles. | | | |
| 2046083 | German - Advanced Course | Z | 2 |
| Mapped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in German without great difficulties and active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehension of popular-scientific and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level. | | | |
| 2046084 | French - Beginners | Z | 2 |
| Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | | | |
| 2046085 | French - Beginners' Course | Z | 2 |
| Mapped to the level of Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | | | |
| 2046086 | French - Lower Intermediate Course | Z | 2 |
| Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | | | |
| 2046087 | French - Lower Intermediate Course | Z | 2 |
| Mapped to the level of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | | | |
| 2046088 | French - Upper Intermediate | Z | 2 |
| Understanding standard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding general and technical texts. | | | |
| 2046089 | French - Upper Intermediate | Z | 2 |
| Mapped to the level of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar topics, that a students comes across at work, at school, during free time, and talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding general and technical texts. | | | |
| 2046090 | French - Advanced | Z | 2 |
| Comprehension of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical articles. | | | |
| 2046091 | French - Advanced | Z | 2 |
| Mapped to the level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical articles. | | | |
| 2046096 | Spanish - Beginners | Z | 2 |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | | | |
| 2046097 | Spanish - Beginners | Z | 2 |
| Mapped to the Common European Framework of Reference Level A1. Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | | | |
| 2046098 | Spanish - Lower Intermediate | Z | 2 |
| Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | | | |
| 2046099 | Spanish - Lower Intermediate | Z | 2 |
| Mapped to the level of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | | | |

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| 2046117 | Czech -Advanced Comprehension of spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning current issues and popular scientific and technical articles. | Z | 2 |
| 2046118 | Czech -Advanced Mapped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czech without great difficulties and active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehension of popular-scientific and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level. | Z | 2 |
| 2046119 | Czech Language for Beginners I. Basic vocabulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professional language) | Z | 2 |
| 2046120 | Czech Language for Beginners II. Mapped to the Common European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional language). | Z | 2 |
| 2046125 | Czech Lower Intermediate Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | Z | 2 |
| 2046126 | Czech Lower Intermediate Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | Z | 2 |
| 2046127 | Czech - Upper Intermediate Understanding standard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding general and technical texts. | Z | 2 |
| 2046128 | Czech - Upper Intermediate Mapped to the Common European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional Czech and common professional terminology. Comprehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening the knowledge technical language. | Z | 2 |
| 2046135 | Russian - Beginners Basic vocabulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professional language) | Z | 2 |
| 2046136 | Russian - Beginners Mapped to the level of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professional language) | Z | 2 |
| 2046137 | Russian - Lower Intermediate Course Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | Z | 2 |
| 2046138 | Russian - Lower Intermediate Course Mapped to the level of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. | Z | 2 |
| 2046139 | Russian - Upper Intermediate Understanding standard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding general and technical texts. | Z | 2 |
| 2046140 | Russian - Upper Intermediate Mapped to the level of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding general and technical texts. | Z | 2 |
| 2046141 | Russian - Advanced Comprehension of spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning current issues and popular scientific and technical articles. | Z | 2 |
| 2046142 | Russian - Advanced Mapped to the level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning current issues and popular scientific and technical articles. | Z | 2 |
| 2046155 | English Conversation Improving communicative skills in speaking on general topics and general technical topics. | Z | 2 |
| 2046156 | English Conversation Improving communicative skills in speaking on general topics and general technical topics. | Z | 2 |
| 2046161 | Presentations in English Preparing students to present in English on technical topics, with a possible co-operation with specialized departments. | Z | 2 |
| 2046162 | Presentations in German Preparation for presenting technical topics in German, possibly in cooperation with specialized departments. | Z | 2 |
| 2046163 | Presentations in French language Preparation for presenting technical topics in French, possibly in cooperation with specialized departments. | Z | 2 |
| 2046164 | Presentations in Russian Preparation for presenting technical topics in Russian, possibly in cooperation with specialized departments. | Z | 2 |
| 2046165 | Presentations in Spanish Preparation for presenting technical topics in Spanish, possibly in cooperation with specialized departments. | Z | 2 |
| 2046166 | Presentations in Czech Preparing students to give presentations in English on technical topics, with a possible co-operation with specialized departments. | Z | 2 |
| 2131002 | Engineering Design II Principles of ISO GPS (Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface texture, geometrical tolerance, dimensional loops, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice their knowledge from lectures. | Z,ZK | 4 |

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| 2131026 | Machine Elements and Mechanisms II | ZK | 3 |
| Preliminary design, design calculations and application of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, pipelines and their accessories and fittings. | | | |
| 2131512 | Machine Elements and Mechanisms I. | Z,ZK | 6 |
| Joints and joining elements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, keys). Mechanical transmissions (belt, chain, friction, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded connecting bolts, clamped, pressed, splined and key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple assembly units is also indispensable seminar work. | | | |
| 2133013 | Engineering Design III. Design of assembly unit (draft drawing, detail drawing, assembly drawing, technical report) | Z | 2 |
| 2133014 | Engineering Design IV. | Z | 2 |
| 2133025 | Design Design, design calculations and their applications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft couplings and clutches. | Z | 4 |
| 2141504 | Electric Circuits and Electronics | Z,ZK | 4 |
| Introduction into theory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of energy. El. Power and Energy. Introduction into electronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, microprocessor. | | | |
| 2141505 | Electrical machines and drives | Z,ZK | 4 |
| AC el. circuits. Electrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transformer, principle, construction, 3-phase transformer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-torque characteristic, speed control. Synchronous machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characteristic. Low-voltage instruments. Low-voltage distribution system. | | | |
| 2144062 | Technical Indonesian - Course II. Basic of Indonesian Language for Student Exchange Program to Indonesia | Z,ZK | 3 |
| 2146060 | Indonesian Language Course for Exchange Basic of Indonesian Language for Student Exchange Program to Indonesia | Z | 2 |
| 2146061 | Technical Indonesian - Course I. Second part of Indonesian Language for Student Exchange Program to Indonesia | Z | 2 |
| 2152091 | Departmental Project | KZ | 2 |
| 2153005 | Fundamentals of Energy Conversions | Z | 1 |
| 2153991 | Bachelor Thesis | Z | 4 |
| 2181026 | Momentum, Mass and Heat Transfer | Z,ZK | 5 |
| Fundamentals of transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical energy equation. Residence time distributions in continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and thermal radiation. Multicomponent systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer. | | | |
| 2182019 | Chemistry | KZ | 3 |
| General chemistry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties of matter, thermodynamics, phase equilibrium, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochemistry. Laboratory practice is oriented upon the material properties measurement. | | | |
| 2182091 | Project Absolvent se seznámí se základy oboru Procesní technika. | KZ | 2 |
| 2183991 | Bachelor Thesis | Z | 4 |
| 2213991 | Bachelor Thesis | Z | 4 |
| 2311101 | Mechanics I. | Z,ZK | 4 |
| Mechanics I deals with the basic concepts of statics. There are described the methods of solution of equilibrium of particles and rigid bodies and their systems with and without friction. There are introduced the methods of description of position and motion of particles and rigid bodies. | | | |
| 2311102 | Mechanics II. | Z,ZK | 4 |
| Kinematics of point and of rigid bodies. Transformation matrix. Kinematics of concurrent movements. Motion: translation, rotation, general planar motion, spherical motion, screw motion, general spatial motion. Composition of mechanisms. Basic planar mechanisms. Analytical methods in kinematics of mechanisms - Trigonometric and vector method. Graphical methods in kinematics. Basic theory of gearing. Transmission mechanisms with gears. Strutting and seeing in mechanisms. Cable mechanisms. | | | |
| 2311107 | Mechanics III. | Z,ZK | 7 |
| Mechanics III deals with the basic concepts of dynamics. Methods of solving the dynamics of mass particle and body motion and their systems are described. Methods for describing and solving vibrations of systems. | | | |
| 2321039 | Materials Science II. | Z,ZK | 4 |
| Fundamentals of metallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and thermo-mechanical processing, technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materials. | | | |
| 2322029 | Materials Science I. | KZ | 3 |
| History and present state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, deformation, recrystallization and fracture of materials, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, iron-carbon phase diagram. | | | |
| 2322091 | Project | KZ | 2 |
| On the basis of the preliminary submission of a bachelor thesis the students, under supervision of their supervisors, prepare a review summarizing and evaluating the studied literature with particular emphasis on experimental technologies which can be applied in their bachelor theses. They can also mention a planned experiment or evaluate hitherto obtained knowledge or results. | | | |
| 2323991 | Bachelor thesis Development of the bachelor thesis on an assignment under the supervision. | Z | 4 |
| 2332091 | Project | KZ | 2 |
| 2333991 | Bachelor Thesis | Z | 4 |
| 2342091 | Project Work on specialized tasks. | KZ | 2 |
| 2352091 | Specialization Project | KZ | 2 |

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| 2362091 | Project | KZ | 2 |
| 2363991 | Bachelor Thesis | Z | 4 |
| 2371047 | Automatic Control Automatic controllers are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automatic control theory and practice like transfer functions, open versus closed loop control, design of controllers and frequency based analysis of control systems. The course also concentrates on logic control and control via programmable logic controllers. Some seminars are arranged in laboratories where practical skills and control engineering methods are trained. Students begin to work with MATLAB software as a common platform of control engineers. | Z,ZK | 5 |
| 2372041 | Computer Support for Study The course introduces students into creating technical and professional documents on computers or Web and into realizing technical computations with the use of computers. Students gain practical skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical-based WWW page. | KZ | 3 |
| 2372083 | Measurement in Engineering Overview of sensor principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and verification of measurement instruments. | KZ | 3 |
| 2372091 | Project An individual project from the branch of specialisation, which student will study on his/her magister level | KZ | 2 |
| 2373991 | Bachelor Thesis Each student will solve his individual theme under guiding of his individual supervising department specialist. Result is his/her bachelor thesis. | Z | 4 |
| 2381054 | Management and Economics of the Enterprise The subject is intended to teach the students of the Faculty of Mechanical Engineering the basic economic starting points necessary for technical reasoning and to help them understand the basic relationships between economic quantities costs - revenues, expenses - incomes and other basic economic terms. The goal is for the audience to be able to communicate with economists in organizations. every product or service is valued at a selling price and therefore it is necessary to understand the simple costing of products and services. Every technician will encounter reports and should understand the basic structure of financial statements. As a future manager, he will compile and approve the operating budget. In the field of management, they will learn basic managerial functions and their content. Furthermore, they will learn how to use network analysis in project management. For decision-making purposes, they will learn the applications of multi-criteria decision-making. The basics of marketing and strategic management will be introduced. | Z,ZK | 4 |
| 2383001 | Fundamentals of Law Basic orientation in legal system is a necessary part of professional equipment of each expert with university degree. The aim of this course is to provide a view into the Czech Legal Order, particular sources of law and system of law (branch of law), using tutorials, lectures, specialised literature and significant legal regulations. It is necessary for students to know our legal institutions, that will be regularly in touch with, especially during their professional career and to learn how to work with the collection of laws. At the same time the course leads students to know some practical habits and processes while putting the law on, especially in domain of contracts and other important legal relationships and to make them ready to prepare professional presentations and to understand basic structures between law and engineering | Z | 2 |
| 2383009 | Communication and Dealing with People Human communication represents an irreplaceable phenomenon in human activity, as it is present in practically all of his activities. The same applies (with specific modifications) to the activities of managers. So you can't not communicate - you can only communicate badly, well and excellently. | Z | 2 |
| K331068 | Technology I Foundry properties of metals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of forming processes. Semi-products, heating-up. Cutting. Cold and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. Brasing. Surface treatment. | Z,ZK | 5 |
| K333038 | Fundamentals of Technology I. Production processes in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technical metals. Production of pig iron and steel. Casting: modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming technology. Hot and cold forging. Free and drop forging. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of welding. Fusion welding: Flame welding and arc welding with coated electrodes. Thermal cutting. | Z | 3 |
| K341014 | Technology II. | Z,ZK | 5 |

For updated information see <http://bilakniha.cvut.cz/en/FF.html>

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