### Study plan

### Name of study plan: 10 62 67 00 DTZI 2012 P základ

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch:

Program of study: Theoretical Fundamentals of Mechanical Engineering

Type of study: Bachelor full-time

Required credits: 219
Elective courses credits: 1
Sum of credits in the plan: 220

Note on the plan: SP12BTZI--P # první pokus SP12BTZI-P BTZI 2012 P základ

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 209

The role of the block: P

Code of the group: 12B-KMENP TZI STR

Name of the group: 01 2012 souhrn skupin 12B\*PiP-KMEN pro i od 1 do 6 Requirement credits in the group: In this group you have to gain 156 credits Requirement courses in the group: In this group you have to complete 37 courses

Credits in the group: 156

Note on the group:

Společné povinné předměty bakalářských programů STR a TZSI

| note on the group | ). Spolectie povinite predificity be  | anaiai Snytii | program | iu STR a   | a 1231   |      |
|-------------------|---|---------------|---------|------------|----------|------|
| Code              | Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members)   | Completion    | Credits | Scope      | Semester | Role |
|                   | Tutors, authors and guarantors (gar.)   |               |         |            |          |      |
| 2371047           | Automatic Control Milan Hofreiter, R žena Petrová, Tomáš Vyhlídal, Jaromír Fišer Tomáš Vyhlídal Tomáš Vyhlídal (Gar.)   | Z,ZK          | 5       | 3P+15C+05L | *        | Р    |
| 2182019           | Chemistry Radek Šulc, Martin Dostál, Vojt ch B lohlav, Stanislav Solna, Jan Sko ilas Radek Šulc Radek Šulc (Gar.)   | KZ            | 3       | 2P+1C      | 1        | Р    |
| 2131512           | Machine Elements and Mechanisms I.  Eliška Cézová, Zden k ešpíro, Martin Dub, Martin Havlí ek, Jan Hoidekr,  Ji í Houkal, Jan Kanaval, František Lopot, Ji í Mrázek, František Lopot František Lopot (Gar.) | Z,ZK          | 6       | 3P+2C      | *        | Р    |
| 2131026           | Machine Elements and Mechanisms II  Eliška Cézová, Zden k ešpíro, Martin Dub, Ji í Houkal, Jan Kanaval, František Lopot, Karel Petr, Jan Flek František Lopot František Lopot (Gar.)                        | ZK            | 3       | 3P+0C      | *        | Р    |
| 2141504           | Electric Circuits and Electronics<br>Stanislava Papežová, Jan Chyský, Jaroslav Novák, Lukáš Novák <b>Jaroslav</b><br><b>Novák</b> Jan Chyský (Gar.)   | Z,ZK          | 4       | 2P+0C+2L   | *        | Р    |
| 2141505           | Electrical machines and drives Jan Chyský, Jaroslav Novák, Lubomír Musálek, Michael Valášek <b>Jaroslav</b> Novák Jan Chyský (Gar.)   | Z,ZK          | 4       | 2P+0C+2L   | *        | Р    |
| 2021041           | Physics I.  | Z,ZK          | 7       | 4P+1L      | *        | Р    |
| 2021025           | Physics II.   | Z,ZK          | 4       | 1P+2L      | 3        | Р    |
| 2133025           | Design František Lopot František Lopot (Gar.)   | Z             | 4       | 0P+4C      | *        | Р    |
| 2011021           | Constructive Geometry Ivana Linkeová  | Z,ZK          | 6       | 3P+2C      | *        | Р    |
| 2381054           | Management and Economics of the Enterprise Olga Heralová, Št pánka Uli ná, Vladimír Brdek, Petr Žemli ka Olga Heralová (Gar.)   | Z,ZK          | 4       | 2P+2C      | *        | Р    |
| 2011056           | Mathematics I<br>Radka Keslerová, Marta Hlavová, Ji í Holman, Gejza Dohnal, Marta ertíková,<br>Vladimír Hric, Nikola Pajerová, Petr Louda, Lukáš Hájek, Radka<br>Keslerová Gejza Dohnal (Gar.)              | Z,ZK          | 8       | 4P+4C      | *        | Р    |
| 2011062           | Matematika II.<br>Radka Keslerová   | Z,ZK          | 8       | 4P+4C      | *        | Р    |

| 2011009 | Mathematics III Radka Keslerová, Ji í Holman, Gejza Dohnal, Marta ertíková, Vladimír Hric, Jan Valášek, Lud k Beneš, Tomáš Bodnár, Tomáš Neustupa, Stanislav Kra mar Stanislav Kra mar (Gar.)                     | Z,ZK | 5 | 2P+2C    | * | Р |
|---------|---|------|---|----------|---|---|
| 2311101 | Mechanics I. Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Michael Valášek Michael Valášek (Gar.)                            | Z,ZK | 4 | 2P+2C    | * | Р |
| 2311102 | Mechanics II. Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Michael Valášek Václav Bauma (Gar.)                              | Z,ZK | 4 | 2P+2C    | * | Р |
| 2121500 | Fluid Dynamics  | Z,ZK | 5 | 3P+2C    | * | Р |
| 2322029 | Materials Science I. Jakub Horník, Jana Sobotová, Ji í Cejp, Elena ižmárová, Pavlína Hájková, Stanislav Krum, Jan Kr il, Vladimír Mára, Lucie Pilsová, Jana Sobotová Jana Sobotová (Gar.)                         | KZ   | 3 | 2P+1L    | 2 | Р |
| 2321039 | Materials Science II. Jakub Horník, Jana Sobotová, Ji í Cejp, Elena ižmárová, Jan Walter, Pavlína Hájková, Stanislav Krum, Jan Kr il, Vladimír Mára, Stanislav Krum Jana Sobotová (Gar.)                          | Z,ZK | 4 | 2P+2L    | * | Р |
| 2011049 | Numerical Mathematics 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.)                                | Z,ZK | 4 | 2P+2C    | 4 | Р |
| 2012037 | Computer Graphics<br>Marta Hlavová, Ji í Holman, Nikola Pajerová, Martin Hanek, Jan Karel, Ivana<br>Linkeová, Jaroslav Cibulka <b>Ivana Linkeová</b>  | KZ   | 3 | 1P+1C    | * | Р |
| 2372041 | Computer Support for Study Vladimír Hlavá   | KZ   | 3 | 1P+1C    | * | Р |
| 2181026 | Momentum, Mass and Heat Transfer Martin Dostál, Vojt ch B Iohlav, Stanislav Solna, Jan Sko ilas, Tomáš Jirout, Adam Krupica, Ji í Moravec Tomáš Jirout Tomáš Jirout (Gar.)  | Z,ZK | 5 | 3P+1C    | * | Р |
| 2132001 | Engineering Design I. Karel Petr  | KZ   | 2 | 1P+2C    | 1 | Р |
| 2131002 | Engineering Design II Martin Dub, Martin Havli ek, Jan Hoidekr, Jan Kanaval, Karel Petr, Marek Štádler, Jan Flek Karel Petr Karel Petr (Gar.)   | Z,ZK | 4 | 2P+3C    | 2 | Р |
| 2133013 | Engineering Design III.  Jan Hoidekr, Jan Kanaval, František Lopot, David Skalický, Roman Uhlí Jan  Hoidekr Jan Hoidekr (Gar.)  | Z    | 2 | 0P+2C    | Z | Р |
| 2133014 | Engineering Design IV. František Lopot František Lopot (Gar.)   | Z    | 2 | 0P+2C    | L | Р |
| 2372083 | Measurement in Engineering Martin Novák, Vladimír Hlavá Martin Novák Martin Novák (Gar.)  | KZ   | 3 | 1P+0C+2L | * | Р |
| 2331068 | Technology I.  Jan Kudlá ek   | Z,ZK | 5 | 2P+2C    | * | Р |
| 2341014 | Technology II. Pavel Novák  | Z,ZK | 5 | 2P+0C+2L | * | Р |
| 2121023 | Thermodynamics  | Z,ZK | 5 | 3P+2C    | * | Р |
| 2131005 | History of Technology   | ZK   | 3 | 2P+0C    | 1 | Р |
| 2012035 | Algorithmization and Programming Fundamentals<br>Ji í Holman, Marta ertíková, Vladimír Hric, Lukáš Hájek, Jan Halama, Vladimír<br>Prokop, Martin Hanek, Jan Karel, Josef Musil, Petr Svá ek Petr Svá ek<br>(Gar.) | KZ   | 4 | 1P+2C    | * | Р |
| 2153005 | Fundamentals of Energy Conversions Ond ej Bartoš, Tomáš Dlouhý, Václav Dostál, Zden k Funda, Miroslav Gleitz, Jan Havlík, Št pán Hrouda, Jitka Jeníková, Guk Chol Jun, Jan Havlík                                 | Z    | 1 | 1P+1C    | * | Р |
| 2383001 | Fundamentals of Law   | Z    | 2 | 1P+1C    | * | Р |

# Characteristics of the courses of this group of Study Plan: Code=12B-KMENP TZI STR Name=01 2012 souhrn skupin 12B\*PiP-KMEN pro i od 1 do 6

Automatic Control

Automatic Con

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.

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

Joints and joining elements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of featners, 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.

| 2131026 Machine Elements and Mechanisms II Preliminary design, design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mecha   | ZK<br>nism, pipelines and | 3<br>their accessories |
|---|---------------------------|------------------------|
| and fittings.  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 accumulator  | 1                         |                        |
| Introduction into electronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabi   |                           |                        |
| 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. curcuits. Electrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet.  |                           |                        |
| 3-phase transformer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, specontrol. Synchronous machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characteristics. | •                         | · •                    |
| Low-voltage distribution system.  | iracteristic. Low-voit    | age mstruments.        |
| 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, elas   |                           |                        |
| waves. Fluid mechanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance.  |                           |                        |
| insulators. Magnetic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and  | indirect measureme        | ents, regression,      |
| measurements of 11 various experiments related to the lectures.   |                           | T                      |
| 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 radiation with matter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom Spectra, x-rays, ;laser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6            |                           |                        |
| 2133025 Design  | Z                         | 4                      |
| Design, design calculations and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft couplings at   | 1                         | , ,                    |
| 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.   | , _,                      |                        |
| 2381054 Management and Economics of the Enterprise  | Z,ZK                      | 4                      |
| The course is designed to give students the understanding of economic principles. The economical part of the course is consisted from: explanation  | on of relationship be     | tween costs and        |
| revenues, expenses and income, concept of investment and calculations per product, presentation how to assemble a basic operating budget and  |                           |                        |
| of the financial statements. The management introduces the basic managerial functions and their contents, the uses of network analysis in project   | t management, with        | the application        |
| of multi-criteria decision, the basics of marketing and strategic management.   | 7.71                      |                        |
| 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 conr<br>will also get to know the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic are    |                           | •                      |
| of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.  | odor organitanizoro       | ana oigointooloro      |
| 2011062 Matematika II.  | Z,ZK                      | 8                      |
| Open and closed set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Diffe   |                           | v (divergence)         |
| and curl (rotation). Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) int   | egral, Fubini theorer     | n. Transformation      |
| of integrals to polar, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and  |                           | -                      |
| 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 Gauss-Ostrogradskij theorem.   | vector field through      | a surface. The         |
| 2011009 Mathematics III   | Z,ZK                      | 5                      |
| An introductory course in ordinary differential equation and infinite series.   | 2,210                     | , 3                    |
| 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 the  |                           | d 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 mo  | -                         |                        |
| general spatial motion. Composition of mechanisms. Basic planar mechanisms. Analytical methods in kinematics of mechanisms - Trigonometric ar   | id vector method. Gi      | raphical methods       |
| in kinematics. Basic theory of gearing. Transmition mechanisms with geers. Strutting and seezing in mechanisms. Cable mechanisms.   | 7.71                      |                        |
| 2121500   Fluid Dynamics   The basic course in fluid dynamics deals with fundamental laws of hydrostatics and hydrodynamics and their application on the basic problems, a  | Z,ZK                      | 5                      |
| pressure losses, simplified solution of unsteady flow. Basic information on more complicated problems (laminar and turbulent flow, boundary layer   |                           |                        |
| introduced as well.   | thoory, now coppar        | anion) aro             |
| 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, or   | leformation, recrysta     | allization and         |
| fracture of materials, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations  | , iron-carbon phase       | diagram.               |
| 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-mecha          | nical processing,      |
| technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materials.   |                           |                        |
| 2011049   Numerical Mathematics   | Z,ZK                      | 4                      |
| Numerical solution of systems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Nur equations, initial and boundary value problems. Numerical solution of basic linear partial differential equations by finite difference method.               | nerical solution of or    | dinary differential    |
| 2012037 Computer Graphics   | KZ                        | 3                      |
| 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   | ı                         |                        |
| gain practical skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical technical computations with a spreadsheet calculator, and by creating technical computations.   |                           | •                      |
| 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. Mechanisms  | 1 '                       | -                      |
| time distributions in continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes at  | nd thermal radiation      | Multicomponent         |
| systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.  |                           | _                      |
| 2132001   Engineering Design I.   | KZ                        | 2                      |
| Basic of technical representation, dimensioning and tolerancing   |                           |                        |

| 2131002  | Engineering Design II  | Z,ZK   | 4   |
|--|--|--|---|
| Principles of ISO GPS  | s (Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surfa   | ace texture, geome   | etrical tolerance,  |
| dimensional loops, tole  | erancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice the   | eir knowledge from   | lectures.   |
| 2133013  | Engineering Design III.  | Z  | 2   |
| Design of assembly ur  | nit (draft drawing, detail drawing, assembly drawing, technical report)  |  |   |
| 2133014  | Engineering Design IV.   | Z  | 2   |
| 2372083  | Measurement in Engineering   | KZ   | 3   |
| Overview of sensor pr  | inciples for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and  | d verification of me   | easurement  |
| instruments.   |  |  |   |
| 2331068  | Technology I.  | Z,ZK   | 5   |
| Foundry properties of I  | metals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of  | forming processes  | . Semi-products   |
| heating-up. Cutting. Co  | old and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. Brazing. Surface treatments.   |  |   |
| 2341014  | Technology II.   | Z,ZK   | 5   |
| maahaniaa af ahin fara   | nation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining eco  | onomics. Automati  | on of processes   |
| mechanics of chip form   |  |  |   |
|  | facture. Engineering metrology. Assembly techniques. Introduction to process planing.  |  |   |
|  |  | Z,ZK   | 5   |
| programming of manu<br>2121023   | facture. Engineering metrology. Assembly techniques. Introduction to process planing.  | Z,ZK   | -   |
| programming of manu<br>2121023<br>The course deal with a   | facture. Engineering metrology. Assembly techniques. Introduction to process planing.  Thermodynamics  | Z,ZK . Basic concepts a  | nd principles are   |
| programming of manu<br>2121023<br>The course deal with a<br>introduced, and they an  | facture. Engineering metrology. Assembly techniques. Introduction to process planing.  Thermodynamics a basic engineering approach to classical thermodynamics, heat transfer and compressible flow through nozzles and diffusers.   | Z,ZK . Basic concepts are with an emphasis or  | nd principles are<br>n psychometrics  |
| programming of manu<br>2121023<br>The course deal with a<br>introduced, and they an  | facture. Engineering metrology. Assembly techniques. Introduction to process planing.  Thermodynamics a basic engineering approach to classical thermodynamics, heat transfer and compressible flow through nozzles and diffusers. re applied mostly to systems behaving as ideal gases or typical vapours. Basic notions associated with ideal mixtures are studied wundamentals of conduction, convection and radiation. Heat exchangers are treated as an engineering application. Exercises and  | Z,ZK . Basic concepts are with an emphasis or  | nd principles are<br>n psychometrics.   |
| programming of manu<br>2121023<br>The course deal with a<br>introduced, and they ar<br>Heat transfer covers fo   | facture. Engineering metrology. Assembly techniques. Introduction to process planing.  Thermodynamics a basic engineering approach to classical thermodynamics, heat transfer and compressible flow through nozzles and diffusers. re applied mostly to systems behaving as ideal gases or typical vapours. Basic notions associated with ideal mixtures are studied wundamentals of conduction, convection and radiation. Heat exchangers are treated as an engineering application. Exercises and  | Z,ZK . Basic concepts are with an emphasis or  | nd principles are<br>n psychometrics  |
| programming of manu<br>2121023<br>The course deal with a<br>introduced, and they al<br>Heat transfer covers fu<br>problems and experim<br>2131005  | facture. Engineering metrology. Assembly techniques. Introduction to process planing.  Thermodynamics a basic engineering approach to classical thermodynamics, heat transfer and compressible flow through nozzles and diffusers. re applied mostly to systems behaving as ideal gases or typical vapours. Basic notions associated with ideal mixtures are studied wundamentals of conduction, convection and radiation. Heat exchangers are treated as an engineering application. Exercises an ental technique.  | Z,ZK Basic concepts all with an emphasis or and labs are devoted.  | nd principles are<br>n psychometrics<br>d to practical  |
| programming of manu<br>2121023<br>The course deal with a<br>introduced, and they al<br>Heat transfer covers fu<br>problems and experim<br>2131005<br>Developement of hum   | facture. Engineering metrology. Assembly techniques. Introduction to process planing.  Thermodynamics a basic engineering approach to classical thermodynamics, heat transfer and compressible flow through nozzles and diffusers. re applied mostly to systems behaving as ideal gases or typical vapours. Basic notions associated with ideal mixtures are studied wundamentals of conduction, convection and radiation. Heat exchangers are treated as an engineering application. Exercises an inental technique.  History of Technology   | Z,ZK Basic concepts are with an emphasis or and labs are devoted ZK is given upon new  | nd principles are n psychometrics. d to practical 3 branches of   |
| programming of manu<br>2121023<br>The course deal with a<br>introduced, and they al<br>Heat transfer covers fu<br>problems and experim<br>2131005<br>Developement of hum   | fracture. Engineering metrology. Assembly techniques. Introduction to process planing.  Thermodynamics a basic engineering approach to classical thermodynamics, heat transfer and compressible flow through nozzles and diffusers. The applied mostly to systems behaving as ideal gases or typical vapours. Basic notions associated with ideal mixtures are studied woundamentals of conduction, convection and radiation. Heat exchangers are treated as an engineering application. Exercises an anental technique.  History of Technology an knowledge in the domain of science and technology in the retrospective of the developement of our civilization. Emphasis is   | Z,ZK Basic concepts are with an emphasis or and labs are devoted ZK is given upon new  | nd principles are n psychometrics d to practical  3 branches of   |
| orogramming of manu<br>2121023<br>The course deal with a<br>introduced, and they are<br>Heat transfer covers for<br>problems and experim<br>2131005<br>Developement of hum<br>technology with specia   | fracture. Engineering metrology. Assembly techniques. Introduction to process planing.  Thermodynamics a basic engineering approach to classical thermodynamics, heat transfer and compressible flow through nozzles and diffusers. The applied mostly to systems behaving as ideal gases or typical vapours. Basic notions associated with ideal mixtures are studied with undamentals of conduction, convection and radiation. Heat exchangers are treated as an engineering application. Exercises an inental technique.  History of Technology an knowledge in the domain of science and technology in the retrospective of the developement of our civilization. Emphasis is all attention to the contribution of mining, iron metallurgy, power engineering, transportation and of the machine industry in the   | Z,ZK Basic concepts an with an emphasis or and labs are devoted ZK is given upon new narrower sense of KZ  | nd principles are n psychometrics d to practical  3 branches of the word.   |
| programming of manu 2121023 The course deal with a introduced, and they as Heat transfer covers for problems and experim 2131005 Developement of hum technology with specia 2012035 Programming in MATL  | fracture. Engineering metrology. Assembly techniques. Introduction to process planing.  Thermodynamics a basic engineering approach to classical thermodynamics, heat transfer and compressible flow through nozzles and diffusers. The applied mostly to systems behaving as ideal gases or typical vapours. Basic notions associated with ideal mixtures are studied with undamentals of conduction, convection and radiation. Heat exchangers are treated as an engineering application. Exercises an aniental technique.  History of Technology an knowledge in the domain of science and technology in the retrospective of the developement of our civilization. Emphasis is all attention to the contribution of mining, iron metallurgy, power engineering, transportation and of the machine industry in the Algorithmization and Programming Fundamentals  | Z,ZK Basic concepts are with an emphasis or and labs are devoted by the second labs are devot | nd principles are n psychometrics d to practical  3 branches of the word.  4 d operations.  |
| programming of manu 2121023 The course deal with a introduced, and they at Heat transfer covers fur problems and experim 2131005 Developement of hum technology with specia 2012035 Programming in MATL Writting M-script. Inpu  | Thermodynamics a basic engineering approach to classical thermodynamics, heat transfer and compressible flow through nozzles and diffusers. The applied mostly to systems behaving as ideal gases or typical vapours. Basic notions associated with ideal mixtures are studied woundamentals of conduction, convection and radiation. Heat exchangers are treated as an engineering application. Exercises an aniental technique.  History of Technology  An knowledge in the domain of science and technology in the retrospective of the developement of our civilization. Emphasis is all attention to the contribution of mining, iron metallurgy, power engineering, transportation and of the machine industry in the Algorithmization and Programming Fundamentals  AB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Matlab command line.  | Z,ZK  Basic concepts are with an emphasis or and labs are devoted by the second labs are devo | nd principles are n psychometrics d to practical  3 branches of the word.  4 d operations. Scripts  |
| programming of manu 2121023 The course deal with a introduced, and they at Heat transfer covers fur problems and experim 2131005 Developement of hum technology with specia 2012035 Programming in MATL Writting M-script. Inpuand functions. Structure 2121023  | Thermodynamics a basic engineering approach to classical thermodynamics, heat transfer and compressible flow through nozzles and diffusers. The applied mostly to systems behaving as ideal gases or typical vapours. Basic notions associated with ideal mixtures are studied woundamentals of conduction, convection and radiation. Heat exchangers are treated as an engineering application. Exercises an antental technique.  History of Technology  An knowledge in the domain of science and technology in the retrospective of the developement of our civilization. Emphasis is all attention to the contribution of mining, iron metallurgy, power engineering, transportation and of the machine industry in the Algorithmization and Programming Fundamentals  AB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Mat and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Set the specific problems in MATLAB. Graphical commands. Matrix operations.  | Z,ZK  Basic concepts are with an emphasis or and labs are devoted by the second labs are devo | nd principles are n psychometrics d to practical  3 branches of the word.  4 d operations. Quations. Scripts mization of  |
| programming of manu 2121023 The course deal with a introduced, and they at Heat transfer covers fur problems and experim 2131005 Developement of hum technology with specia 2012035 Programming in MATL Writting M-script. Inpuand functions. Structure 2121023  | Thermodynamics a basic engineering approach to classical thermodynamics, heat transfer and compressible flow through nozzles and diffusers. The applied mostly to systems behaving as ideal gases or typical vapours. Basic notions associated with ideal mixtures are studied woundamentals of conduction, convection and radiation. Heat exchangers are treated as an engineering application. Exercises an aniental technique.  History of Technology an knowledge in the domain of science and technology in the retrospective of the developement of our civilization. Emphasis is all attention to the contribution of mining, iron metallurgy, power engineering, transportation and of the machine industry in the Algorithmization and Programming Fundamentals  AB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Mat and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Since of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. Since of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. Since of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files.   | Z,ZK  Basic concepts are with an emphasis or and labs are devoted by the second labs are devo | nd principles are n psychometrics d to practical  3 branches of the word.  4 d operations. Scripts mization of  |
| programming of manu 2121023 The course deal with a introduced, and they at Heat transfer covers fur problems and experim 2131005 Developement of hum technology with specia 2012035 Programming in MATL Writting M-script. Inpu and functions. Structur simple programs: mini  | Thermodynamics a basic engineering approach to classical thermodynamics, heat transfer and compressible flow through nozzles and diffusers. The applied mostly to systems behaving as ideal gases or typical vapours. Basic notions associated with ideal mixtures are studied woundamentals of conduction, convection and radiation. Heat exchangers are treated as an engineering application. Exercises an an entral technique.  History of Technology  Instrumental to the domain of science and technology in the retrospective of the development of our civilization. Emphasis is all attention to the contribution of mining, iron metallurgy, power engineering, transportation and of the machine industry in the Algorithmization and Programming Fundamentals  AB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Mat and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Syre of program. Variables, expressions, assignment, and input / output commands. Switch. For cycle. Arrays and files. Pointers. Symum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of  | Z,ZK  Basic concepts are with an emphasis or and labs are devoted by the service of the service  | and principles are n psychometrics d to practical  3 branches of the word.  4 d operations. Scripts amization of equations.   |
| programming of manu 2121023 The course deal with a introduced, and they are Heat transfer covers for problems and experim 2131005 Developement of hum technology with specia 2012035 Programming in MATL Writting M-script. Inpurand functions. Structurisimple programs: mini 2153005 2383001   | Thermodynamics a basic engineering approach to classical thermodynamics, heat transfer and compressible flow through nozzles and diffusers. The applied mostly to systems behaving as ideal gases or typical vapours. Basic notions associated with ideal mixtures are studied woundamentals of conduction, convection and radiation. Heat exchangers are treated as an engineering application. Exercises an antental technique.  History of Technology and knowledge in the domain of science and technology in the retrospective of the developement of our civilization. Emphasis is all attention to the contribution of mining, iron metallurgy, power engineering, transportation and of the machine industry in the Algorithmization and Programming Fundamentals  AB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Mat and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Singular program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. Singular programming integration, bisection method, Newton method, matrix operations. Direct methods for solution of Fundamentals of Energy Conversions  | Z,ZK Basic concepts an with an emphasis of and labs are devoted by the second labs are devote | and principles are n psychometrics of to practical 3 branches of the word.  4 di operations. Scripts imization of equations.  1 2   |
| programming of manu 2121023 The course deal with a introduced, and they are Heat transfer covers for problems and experim 2131005 Developement of hum technology with specia 2012035 Programming in MATL Writting M-script. Inpurand functions. Structurisimple programs: mini 2153005 2383001 Basic orientation in leg  | Thermodynamics a basic engineering approach to classical thermodynamics, heat transfer and compressible flow through nozzles and diffusers. The applied mostly to systems behaving as ideal gases or typical vapours. Basic notions associated with ideal mixtures are studied wundamentals of conduction, convection and radiation. Heat exchangers are treated as an engineering application. Exercises an antental technique.  History of Technology and knowledge in the domain of science and technology in the retrospective of the developement of our civilization. Emphasis is all attention to the contribution of mining, iron metallurgy, power engineering, transportation and of the machine industry in the Algorithmization and Programming Fundamentals  AB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Mat and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Singular to operations of singular to operations of singular to operations. Singular to operations operations of singular to operations operations. Singular to operations operatio | Z,ZK Basic concepts an with an emphasis of and labs are devoted by the service of | and principles are no psychometrics of to practical 3 branches of the word.  4 di operations. Scriptomization of equations.  1 2 ne Czech Legal   |
| programming of manu 2121023 The course deal with a introduced, and they are Heat transfer covers for problems and experim 2131005 Developement of hum technology with specia 2012035 Programming in MATL Writting M-script. Inpurand functions. Structurisimple programs: mini 2153005 2383001 Basic orientation in leg Order, particular source                                 | Thermodynamics a basic engineering approach to classical thermodynamics, heat transfer and compressible flow through nozzles and diffusers. The applied mostly to systems behaving as ideal gases or typical vapours. Basic notions associated with ideal mixtures are studied wundamentals of conduction, convection and radiation. Heat exchangers are treated as an engineering application. Exercises an an ental technique.  History of Technology and knowledge in the domain of science and technology in the retrospective of the developement of our civilization. Emphasis is at attention to the contribution of mining, iron metallurgy, power engineering, transportation and of the machine industry in the Algorithmization and Programming Fundamentals  AB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Mat and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Series of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. Series of program. Integration, bisection method, Newton method, matrix operations. Direct methods for solution of Fundamentals of Energy Conversions  Fundamentals of Law gas system is a necessary part of professional equipment of each expert with university degree. The aim of this course is to program and system is a necessary part of professional equipment of each expert with university degree.   | Z,ZK Basic concepts an with an emphasis of and labs are devoted as given upon new narrower sense of KZ Atrices, vectors and systems of linear expectations. Algorith f systems of linear Z Z Ovide a view into the is necessary for still  | and principles are no psychometrics of the practical stranger of the word.  4 dispersional operations. Scripts immization of equations.  1 2 ne Czech Legal audents to know                             |
| programming of manu 2121023 The course deal with a introduced, and they are Heat transfer covers for problems and experim 2131005 Developement of hum technology with specia 2012035 Programming in MATL Writting M-script. Inpurand functions. Structure is imple programs: mini 2153005 2383001 Basic orientation in legor Order, particular source our legal institutions, to | Thermodynamics a basic engineering approach to classical thermodynamics, heat transfer and compressible flow through nozzles and diffusers. The applied mostly to systems behaving as ideal gases or typical vapours. Basic notions associated with ideal mixtures are studied wundamentals of conduction, convection and radiation. Heat exchangers are treated as an engineering application. Exercises an an ental technique.  History of Technology and knowledge in the domain of science and technology in the retrospective of the developement of our civilization. Emphasis is all attention to the contribution of mining, iron metallurgy, power engineering, transportation and of the machine industry in the Algorithmization and Programming Fundamentals  AB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Mat and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Since of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. Since of program. Integration, bisection method, Newton method, matrix operations. Direct methods for solution of Fundamentals of Energy Conversions  Fundamentals of Law gal system is a necessary part of professional equipment of each expert with university degree. The aim of this course is to process of law and system of law (branch of law), using tutorials, lectures, specialised literature and significant legal regulations. It  | Z,ZK Basic concepts are with an emphasis or and labs are devoted as given upon new narrower sense of KZ Atrices, vectors and systems of linear expectors. Algorith f systems of linear Z Z Ovide a view into the is necessary for stays. At the same time  | and principles are in psychometrics of the practical strange of the word.  4 dispersional operations. Scripts in particularly a property of the word.  1 2 ne Czech Legal audents to know ne the course |

Code of the group: 12DTP1P-KMEN

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

to prepare professional presentations and to understand basic structures between law and engineering

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

Credits in the group: 0

Note on the group.

12B\*\*1P-KMEN #

| Note on the group | ). 120 11 -  | IXIVILIN # |         |       |          |      |
|-------------------|--|------------|---------|-------|----------|------|
| 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, Vojt ch B lohlav, Stanislav Solna , Jan Sko ilas Radek Šulc Radek Šulc (Gar.)   | KZ         | 3       | 2P+1C | 1        | Р    |
| 2011021           | Constructive Geometry Ivana Linkeová   | Z,ZK       | 6       | 3P+2C | *        | Р    |
| 201A021           | Constructive Geometry A Ivana Linkeová   | ZK         | 3       | 0P+0C | *        | Р    |
| 2011056           | Mathematics I<br>Radka Keslerová, Marta Hlavová, Ji í Holman, Gejza Dohnal, Marta ertíková,<br>Vladimír Hric, Nikola Pajerová, Petr Louda, Lukáš Hájek, Radka<br>Keslerová Gejza Dohnal (Gar.) | Z,ZK       | 8       | 4P+4C | *        | Р    |
| 201A056           | Mathematics I.A<br>Radka Keslerová   | ZK         | 4       | 0P+0C | *        | Р    |
| 2372041           | Computer Support for Study<br>Vladimír Hlavá   | KZ         | 3       | 1P+1C | *        | Р    |
| 2132001           | Engineering Design I. Karel Petr   | KZ         | 2       | 1P+2C | 1        | Р    |
| 2131005           | History of Technology  | ZK         | 3       | 2P+0C | 1        | Р    |
| 2333038           | Fundamentals of Technology I.  Marie Kola íková  | Z          | 3       | 1P+1C | *        | Р    |

Characteristics of the courses of this group of Study Plan: Code=12DTP1P-KMEN Name=00 2012 D kmenové 1. semestr TZI prezen ní

| 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   | d properties of matter, therm   | odynamics,     |
| 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 focu   | sed 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, grea   | ter emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships ar   | nd connections between con-     | cepts. Student |
| will also get to know | v the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some ther  | matic areas: eigennumbers a     | nd eigenvector |
| of a matrix, Taylor   | polynomial, integral as a limit function, integration of some special functions.  |                                 |                |
| 2372041               | Computer Support for Study  | KZ                              | 3              |
| The course introdu    | ices students into creating technical and professional documents on computers or Web and into realizing technical | utations with the use of comp   | uters. Student |
| 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        | Э.             |
| 2132001               | Engineering Design I.   | KZ                              | 2              |
| Basic of technical    | representation, dimensioning and tolerancing  |                                 |                |
| 2131005               | History of Technology   | ZK                              | 3              |
| •                     | numan knowledge in the domain of science and technology in the retrospective of the developement of our civilization. E<br>ecial attention to the contribution of mining, iron metallurgy, power engineering, transportation and of the machine indus   |                                 |                |
| 201A021               | Constructive Geometry A   | ZK                              | 3              |
| The subject is focu   | ised on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.   | 1 1                             | •              |
| 201A056               | Mathematics I.A   | ZK                              | 4              |
| Introduction to line  | ar algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable   | 1                               |                |
| 2333038               | Fundamentals of Technology I.   | Z                               | 3              |
| Oroduction process    | ses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and ca   | st iron, technical metals. Pro  | duction of pig |
| - roduction proces    |   | Carmina to sha alaay I lat aa d | and forming    |
| •                     | ting: modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. I  | Forming technology. Hot and     | cold lorging.  |
| ron and steel. Cas    | ting: modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. I<br>ing. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various ty  | 0 07                            | 0 0            |

Code of the group: 12DTP2P-KMEN

Physics I.

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

Requirement credits in the group: In this group you have to gain 25 credits

Requirement courses in the group: In this group you have to complete 5 courses

Credits in the group: 25

Note on the group:

2021041

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 | *        | Р    |
| 202A041 | Physics I.  | ZK         | 3       | 0P+0L | *        | Р    |
| 2011062 | Matematika II. Radka Keslerová  | Z,ZK       | 8       | 4P+4C | *        | Р    |
| 201A062 | Mathematics II.A<br>Radka Keslerová   | ZK         | 4       | 0P+0C | *        | Р    |
| 2322029 | Materials Science I. Jakub Horník, Jana Sobotová, Ji í Cejp, Elena ižmárová, Pavlína Hájková, Stanislav Krum, Jan Kr il, Vladimír Mára, Lucie Pilsová, Jana Sobotová Jana Sobotová (Gar.) | KZ         | 3       | 2P+1L | 2        | Р    |
| 2012037 | Computer Graphics<br>Marta Hlavová, Ji í Holman, Nikola Pajerová, Martin Hanek, Jan Karel, Ivana<br>Linkeová, Jaroslav Cibulka <b>Ivana Linkeová</b>                                      | KZ         | 3       | 1P+1C | *        | Р    |
| 2131002 | Engineering Design II  Martin Dub, Martin Havlí ek, Jan Hoidekr, Jan Kanaval, Karel Petr, Marek Štádler, Jan Flek Karel Petr Karel Petr (Gar.)  | Z,ZK       | 4       | 2P+3C | 2        | Р    |

#### Characteristics of the courses of this group of Study Plan: Code=12DTP2P-KMEN Name=00 2012 D kmenové 2. semestr TZI prezen ní

|  | <b>)</b>  | ,                  | 1                |  |  |  |  |  |  |
|--|---|--------------------|------------------|--|--|--|--|--|--|
| 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 va  | arious experiments related to the lectures.   |                    |                  |  |  |  |  |  |  |
| 2011062  | Matematika II.  | Z,ZK               | 8                |  |  |  |  |  |  |
| Open and closed set, b   | 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 our (rotation) Fund  | tion gives implicitly Legal and global ( shoot to) system as of a function of more variables. Double integral values ( triple) integral   | ral Fuhini theores | . Transformation |  |  |  |  |  |  |

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.

2322029 Materials Science I.

KZ 3

Z,ZK

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.

fracture of materials, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, iron-carbon phase diagram.

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.

202A041 Physics I. ZK

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.

201A062 Mathematics II.A ZK

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.

Code of the group: 12DTP3P-KMEN

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

Requirement credits in the group: In this group you have to gain 28 credits

Requirement courses in the group: In this group you have to complete 7 courses

Credits in the group: 28

Note on the group:

12B\*\*3P-KMEN #

| note on the group | ). IZB 3F-  | IXIVILIN # |         |       |          |      |
|-------------------|---|------------|---------|-------|----------|------|
| 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 |
| 2021025           | Physics II.   | Z,ZK       | 4       | 1P+2L | 3        | Р    |
| 202A025           | Physics II.A  | ZK         | 2       | 0P+0C | *        | Р    |
| 2011009           | Mathematics III<br>Radka Keslerová, Ji í Holman, Gejza Dohnal, Marta ertíková, Vladimír Hric,<br>Jan Valášek, Lud k Beneš, Tomáš Bodnár, Tomáš Neustupa, Stanislav<br>Kra mar Stanislav Kra mar (Gar.)            | Z,ZK       | 5       | 2P+2C | *        | Р    |
| 201A009           | Mathematics III.A Stanislav Kra mar   | ZK         | 2       | 0P+0C | *        | Р    |
| 2311101           | Mechanics I.  Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Michael Valášek Michael Valášek (Gar.)                           | Z,ZK       | 4       | 2P+2C | *        | Р    |
| 231A101           | Mechanics I.A<br>Michael Valášek  | ZK         | 2       | 0P+0C | *        | Р    |
| 2321039           | Materials Science II. Jakub Horník, Jana Sobotová, Ji í Cejp, Elena ižmárová, Jan Walter, Pavlína Hájková, Stanislav Krum, Jan Kr il, Vladimír Mára, Stanislav Krum Jana Sobotová (Gar.)                          | Z,ZK       | 4       | 2P+2L | *        | Р    |
| 2133013           | Engineering Design III.<br>Jan Hoidekr, Jan Kanaval, František Lopot, David Skalický, Roman Uhlí <b>Jan</b><br><b>Hoidekr</b> Jan Hoidekr (Gar.)  | Z          | 2       | 0P+2C | Z        | Р    |
| 2121023           | Thermodynamics  | Z,ZK       | 5       | 3P+2C | *        | Р    |
| 212A023           | Thermodynamics A  | ZK         | 2       | 0P+0C | *        | Р    |
| 2012035           | Algorithmization and Programming Fundamentals<br>Ji í Holman, Marta ertíková, Vladimír Hric, Lukáš Hájek, Jan Halama, Vladimír<br>Prokop, Martin Hanek, Jan Karel, Josef Musil, Petr Svá ek Petr Svá ek<br>(Gar.) | KZ         | 4       | 1P+2C | *        | Р    |

| 2021025               | Physics II.  | Z,ZK                | 4                 |
|-----------------------|--|---------------------|-------------------|
| Faraday's law of ele  | ctromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties o     | electromagnetic wa  | aves. Interaction |
| of radiation with ma  | atter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom      | and periodic system | of elements.      |
| Spectra, x-rays, ;las | ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6      | experiments related | to the lectures   |
| 2011009               | Mathematics III  | Z,ZK                | 5                 |
| An introductory cou   | urse in ordinary differential equation and infinite series.  |                     |                   |
| 2311101               | Mechanics I.   | Z,ZK                | 4                 |
| Mechanics I deals v   | with the basic concepts of statics. There are described the methods of solution of equilibrium of particles and rigid bodies and the | ir systems with and | without friction  |
| There are introduce   | ed the methods of description of position and motion of particles and rigid bodies.  |                     |                   |
| 2321039               | Materials Science II.  | Z,ZK                | 4                 |
| undamentals of m      | etallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal a       | nd thermo-mechan    | ical processing   |
| technical iron-carbo  | on alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materials.                   |                     |                   |
| 2133013               | Engineering Design III.  | Z                   | 2                 |
| Design of assembly    | vunit (draft drawing, detail drawing, assembly drawing, technical report)  | 1                   |                   |

|  | hermodynamics   |  |                                      |   | Z,ZK                       | 5             |
|--|---|--|--------------------------------------|---|----------------------------|---------------|
|  | sic engineering approach to classical thermodynamics, heat transfer and compressible fl   | _  |                                      |   |                            |               |
|  | oplied mostly to systems behaving as ideal gases or typical vapours. Basic notions associate<br>amentals of conduction, convection and radiation. Heat exchangers are treated as an eng   |  |                                      |   |                            |               |
| problems and experiment  | - · · · · · · · · · · · · · · · · · · ·   | girieering applicati   | UII.LXEICISE                         | s and labs o  | are devoted to             | practical     |
| · · · · · · · · · · · · · · · · · · ·  | Algorithmization and Programming Fundamentals   |  |                                      |   | KZ                         | 4             |
| The state of the s | and its programming language. MATLAB command line. Elementary commands, variable  | e, assignment and  | l expression                         | 1   |                            |               |
|  | d output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical   | _  | -                                    |   | -                          |               |
| and functions. Structure of  | f program. Variables, expressions, assignment, and input / output commands. switch. For   | cycle. Arrays and  | files. Pointe                        | ers. Structur   | es. Algorithmi             | zation of     |
| simple programs: minimur   | n, mean, norm, numerical integration, bisection method, Newton method, matrix operation   | ons. Direct method   | ls for solution                      | n of system   | s of linear eq             | uations.      |
| 202A025 F  | Physics II.A  |  |                                      |   | ZK                         | 2             |
| =  | ignetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometr  |  |                                      |   | -                          |               |
|  | notoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of p<br>nd theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. La  |  |                                      |   | •                          |               |
|  | Mathematics III.A   | iboratories - meas   | urements o                           |   | ZK                         | 2             |
|  | Mechanics I.A   |  |                                      |   | ZK                         | 2             |
|  |   |  |                                      | _   | ZK                         | 2             |
| · ·  | Thermodynamics A sic engineering approach to classical thermodynamics, heat transfer and compressible flo   | ow through pozzle  | se and diffus                        |   | I                          |               |
|  | oplied mostly to systems behaving as ideal gases or typical vapours. Basic notions associate  | _  |                                      |   |                            |               |
|  | amentals of conduction, convection and radiation. Heat exchangers are treated as an en  |  |                                      |   |                            |               |
| problems and experimenta   | al technique  |  |                                      |   |                            |               |
|  |   |  |                                      |   |                            |               |
| Code of the aro  | up: 12DTP4P-KMEN  |  |                                      |   |                            |               |
|  | pup: 00 2012 D kmenové 4. semestr TZI prezen ní   |  |                                      |   |                            |               |
| _  | ·   |  |                                      |   |                            |               |
| •  | edits in the group:   |  |                                      |   |                            |               |
| Requirement co   | ourses in the group:  |  |                                      |   |                            |               |
| San alika ila klara ada  |   |  |                                      |   |                            |               |
| realts in the ar   | oup: 0  |  |                                      |   |                            |               |
| Credits in the gr  | ·   | KMEN#  |                                      |   |                            |               |
| Note on the gro  | up: 12B*P4P-  | KMEN#  |                                      | I   | T                          | T             |
| Note on the gro  | up: 12B*P4P-  |  |                                      |   |                            |               |
| •  | up: 12B*P4P-  | KMEN #   | Credits                              | Scope   | Semester                   | Role          |
| Note on the gro  | up: 12B*P4P- Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their   |  | Credits                              | Scope   | Semester                   | Role          |
| Note on the gro  | 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.)  Mechanics II.  |  | Credits                              | Scope   | Semester                   | Role          |
| Note on the gro  | 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.)  Mechanics II.  Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin  |  | Credits                              | Scope 2P+2C   | Semester                   | Role          |
| Note on the gro  | 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.)  Mechanics II.  | Completion   |                                      | -   | Semester                   |               |
| Note on the gro  | 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.)  Mechanics II. Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Michael Valášek   | Completion<br>Z,ZK   | 4                                    | 2P+2C   | Semester                   | P             |
| Note on the gro  Code  2311102   | 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.)  Mechanics II. Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Michael Valášek Václav Bauma (Gar.)   | Completion Z,ZK ZK   | 4                                    | 2P+2C<br>0P+0C  | *                          |               |
| Note on the gro  | 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.)  Mechanics II. Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Michael Valášek Václav Bauma (Gar.)  Mechanics II.A   | Completion<br>Z,ZK   | 4                                    | 2P+2C   | *                          | P             |
| Note on the gro  Code  2311102   | 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.)  Mechanics II. Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Michael Valášek Václav Bauma (Gar.)  Mechanics II.A Michael Valášek   | Completion Z,ZK ZK   | 4                                    | 2P+2C<br>0P+0C  | *                          | P<br>P        |
| Note on the gro  Code  2311102 231A102 2121500   | 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.)  Mechanics II. Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Michael Valášek Václav Bauma (Gar.)  Mechanics II.A Michael Valášek  Fluid Dynamics   | Completion Z,ZK ZK ZK Z,ZK   | 4<br>2<br>5                          | 2P+2C<br>0P+0C<br>3P+2C   | *                          | P<br>P        |
| Note on the gro  Code  2311102 231A102 2121500   | 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.)  Mechanics II. Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Michael Valášek Václav Bauma (Gar.)  Mechanics II.A Michael Valášek  Fluid Dynamics  Fluid Dynamics  Fluid Dynamics A  Numerical Mathematics Radka Keslerová, Ji í Holman, Marta ertíková, Vladimír Hric, Petr Louda,   | Completion Z,ZK ZK ZK Z,ZK   | 4<br>2<br>5                          | 2P+2C<br>0P+0C<br>3P+2C   | *                          | P<br>P        |
| Note on the gro  Code  2311102  231A102  2121500  212A500  | 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.)  Mechanics II. Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Michael Valášek Václav Bauma (Gar.)  Mechanics II.A Michael Valášek Fluid Dynamics Fluid Dynamics Fluid Dynamics A  Numerical Mathematics Radka Keslerová, Ji í Holman, Marta ertíková, Vladimír Hric, Petr Louda, Lukáš Hájek, Jan Valášek, Lud k Beneš, Tomáš Bodnár, Petr Svá ek   | Completion Z,ZK ZK ZK Z,ZK ZK                                      | 4<br>2<br>5<br>3                     | 2P+2C<br>0P+0C<br>3P+2C<br>0P+0C  | * * *                      | P<br>P<br>P   |
| Note on the gro  Code  2311102  231A102  2121500  212A500  2011049   | 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.)  Mechanics II. Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Michael Valášek Václav Bauma (Gar.)  Mechanics II.A Michael Valášek  Fluid Dynamics  Fluid Dynamics  Fluid Dynamics A  Numerical Mathematics 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.)   | Z,ZK ZK Z,ZK ZK Z,ZK Z,ZK  | 4<br>2<br>5<br>3<br>4                | 2P+2C<br>0P+0C<br>3P+2C<br>0P+0C<br>2P+2C   | * * * * 4                  | P<br>P<br>P   |
| Note on the gro  Code  2311102  231A102  2121500  212A500  | 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.)  Mechanics II. Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Michael Valášek Václav Bauma (Gar.)  Mechanics II.A Michael Valášek Fluid Dynamics Fluid Dynamics Fluid Dynamics A  Numerical Mathematics Radka Keslerová, Ji í Holman, Marta ertíková, Vladimír Hric, Petr Louda, Lukáš Hájek, Jan Valášek, Lud k Beneš, Tomáš Bodnár, Petr Svá ek   | Completion Z,ZK ZK ZK Z,ZK ZK                                      | 4<br>2<br>5<br>3                     | 2P+2C<br>0P+0C<br>3P+2C<br>0P+0C  | * * *                      | P<br>P<br>P   |
| Note on the gro  Code  2311102  231A102  2121500  212A500  2011049  201A049  | 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.)  Mechanics II. Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Michael Valášek Václav Bauma (Gar.)  Mechanics II.A Michael Valášek  Fluid Dynamics  Fluid Dynamics  Fluid Dynamics A  Numerical Mathematics 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.)  Numerical Mathematics A Lud k Beneš  Engineering Design IV.  | Z,ZK ZK Z,ZK ZK Z,ZK Z,ZK Z,ZK                                     | 4<br>2<br>5<br>3<br>4                | 2P+2C<br>0P+0C<br>3P+2C<br>0P+0C<br>2P+2C   | * * * * 4                  | P P P         |
| Note on the gro  Code  2311102  231A102  2121500  212A500  2011049   | 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.)  Mechanics II. Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Michael Valášek Václav Bauma (Gar.)  Mechanics II.A Michael Valášek  Fluid Dynamics  Fluid Dynamics  Fluid Dynamics  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.)  Numerical Mathematics A Lud k Beneš  Engineering Design IV. František Lopot František Lopot (Gar.)   | Z,ZK ZK Z,ZK ZK Z,ZK Z,ZK  | 4<br>2<br>5<br>3<br>4                | 2P+2C<br>0P+0C<br>3P+2C<br>0P+0C<br>2P+2C   | * * * * 4                  | P<br>P<br>P   |
| Note on the gro  Code  2311102  231A102  2121500  212A500  2011049  201A049  | 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.)  Mechanics II. Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Michael Valášek Václav Bauma (Gar.)  Mechanics II.A Michael Valášek  Fluid Dynamics  Fluid Dynamics  Fluid Dynamics  Fluid Bathematics 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.)  Numerical Mathematics A Lud k Beneš  Engineering Design IV. František Lopot František Lopot (Gar.)  Technology I.                                  | Z,ZK ZK Z,ZK ZK Z,ZK Z,ZK Z,ZK                                     | 4<br>2<br>5<br>3<br>4                | 2P+2C<br>0P+0C<br>3P+2C<br>0P+0C<br>2P+2C   | * * * * 4                  | P P P         |
| Note on the gro  Code  2311102  231A102  2121500  212A500  2011049  201A049  2133014   | 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.)  Mechanics II. Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Michael Valášek Václav Bauma (Gar.)  Mechanics II.A Michael Valášek  Fluid Dynamics  Fluid Dynamics  Fluid Dynamics  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.)  Numerical Mathematics A Lud k Beneš  Engineering Design IV. František Lopot František Lopot (Gar.)   | Z,ZK ZK Z,ZK ZK Z,ZK Z,ZK Z,ZK Z,ZK Z                              | 4<br>2<br>5<br>3<br>4<br>2<br>2      | 2P+2C<br>0P+0C<br>3P+2C<br>0P+0C<br>2P+2C<br>0P+0C<br>0P+2C                       | *     *     *     4     *  | P P P P       |
| Note on the gro  Code  2311102  231A102  2121500  212A500  2011049  201A049  2133014  2331068  | 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.)  Mechanics II. Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Michael Valášek Václav Bauma (Gar.)  Mechanics II.A Michael Valášek  Fluid Dynamics  Fluid Dynamics  Fluid Dynamics  Fluid Bathematics 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.)  Numerical Mathematics A Lud k Beneš  Engineering Design IV. František Lopot František Lopot (Gar.)  Technology I.                                  | Z,ZK ZK ZK ZK ZK ZK ZK Z,ZK ZK ZK ZK ZK ZK                         | 4<br>2<br>5<br>3<br>4<br>2<br>2<br>5 | 2P+2C 0P+0C 3P+2C 0P+0C 2P+2C 0P+0C 2P+2C 2P+2C                                   | *  *  4  *  L              | P P P P       |
| Note on the gro  Code  2311102  231A102  2121500  212A500  2011049  201A049  2133014  2331068  Characteristics of the gro  Code  Cod | 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.)  Mechanics II. Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Michael Valášek Václav Bauma (Gar.)  Mechanics II.A Michael Valášek  Fluid Dynamics  Fluid Dynamics  Fluid Dynamics  Fluid Pynamics  Fluid Beneš, Jan Pelikán, Marta ertíková, Vladimír Hric, Petr Louda, Lukáš Hájek, Jan Valášek, Lud k Beneš, Tomáš Bodnár, Petr Svá ek Petr Svá ek (Gar.)  Numerical Mathematics A Lud k Beneš  Engineering Design IV. František Lopot František Lopot (Gar.)  Technology I. Jan Kudlá ek                           | Z,ZK ZK ZK ZK ZK ZK ZK Z,ZK ZK ZK ZK ZK ZK                         | 4<br>2<br>5<br>3<br>4<br>2<br>2<br>5 | 2P+2C<br>0P+0C<br>3P+2C<br>0P+0C<br>2P+2C<br>0P+0C<br>0P+2C<br>2P+2C<br>ové 4. se | *  *  4  *  L              | P P P P       |
| Note on the gro  Code  2311102  231A102  2121500  212A500  2011049  201A049  2133014  2331068  Characteristics of the gro  In the gro  Code  Cod | 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.)  Mechanics II. Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Michael Valášek Václav Bauma (Gar.)  Mechanics II.A Michael Valášek  Fluid Dynamics  Fluid Dynamics  Fluid Dynamics  Fluid Dynamics  Numerical Mathematics 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.)  Numerical Mathematics A Lud k Beneš  Engineering Design IV. František Lopot František Lopot (Gar.)  Technology I. Jan Kudlá ek | Z,ZK  ZK  Z,ZK  Z,ZK  Z,ZK  Z,ZK  Z,ZK  Z,ZK  Z  Z,ZK  Ame=00 2012 | 4 2 5 3 4 2 2 5 5 2 D kmen           | 2P+2C  0P+0C  3P+2C  0P+0C  2P+2C  0P+0C  2P+2C  0P+2C  2P+2C                     | *  *  4  * L  * emestr TZI | P P P P P P P |

Fluid Dynamics The basic course in fluid dynamics deals with fundamental laws of hydrostatics and hydrodynamics and their application on the basic problems, as 1D flow in ducts, estimation of pressure losses, simplified solution of unsteady flow. Basic information on more complicated problems (laminar and turbulent flow, boundary layer theory, flow sepparatrion) are introduced as well. Numerical Mathematics Z,ZK 2011049 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 2133014 Engineering Design IV. 2 Technology I. Z,ZK 2331068 5 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. Brazing. Surface treatments. 231A102 Mechanics II.A ZK 2

212A500 Fluid Dynamics A

The basic course in fluid dynamics deals with fundamental laws of hydrostatics and hydrodynamics and their application on the basic problems, as 1D flow in ducts, estimation of pressure losses, simplified solution of unsteady flow. Basic information on more complicated problems (laminar and turbulent flow, boundary layer theory, flow sepparatrion) are introduced as well.

201A049 Numerical Mathematics A

ZK 2

Code of the group: 12DTP5P-KMEN

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

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

Credits in the group: 0

Note on the group:

12B\*P5P-KMEN#

| note on the group | ). 120 1 31 -  | I XIVILIN # |         |          |          |      |
|-------------------|--|-------------|---------|----------|----------|------|
| 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.  Eliška Cézová, Zden k ešpíro, Martin Dub, Martin Havlí ek, Jan Hoidekr, Ji í Houkal, Jan Kanaval, František Lopot, Ji í Mrázek, František Lopot František Lopot (Gar.) | Z,ZK        | 6       | 3P+2C    | *        | Р    |
| 2141504           | Electric Circuits and Electronics<br>Stanislava Papežová, Jan Chyský, Jaroslav Novák, Lukáš Novák <b>Jaroslav</b><br><b>Novák</b> Jan Chyský (Gar.)  | Z,ZK        | 4       | 2P+0C+2L | *        | Р    |
| 2311107           | Mechanics III.  Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Michael Valášek Michael Valášek (Gar.)                  | Z,ZK        | 7       | 2P+3C    | 5        | Р    |
| 231A107           | Mechanics III.A  Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Michael Valášek Michael Valášek (Gar.)                 | ZK          | 4       | 0P+0C    | *        | Р    |
| 2372083           | Measurement in Engineering<br>Martin Novák, Vladimír Hlavá Martin Novák Martin Novák (Gar.)  | KZ          | 3       | 1P+0C+2L | *        | Р    |
| 2341014           | Technology II. Pavel Novák   | Z,ZK        | 5       | 2P+0C+2L | *        | Р    |
| 2153005           | Fundamentals of Energy Conversions Ond ej Bartoš, Tomáš Dlouhý, Václav Dostál, Zden k Funda, Miroslav Gleitz, Jan Havlík, Št pán Hrouda, Jitka Jeníková, Guk Chol Jun, Jan Havlík                          | Z           | 1       | 1P+1C    | *        | Р    |
| 2383001           | Fundamentals of Law<br>Václav Pilík Václav Pilík (Gar.)  | Z           | 2       | 1P+1C    | *        | Р    |

#### Characteristics of the courses of this group of Study Plan: Code=12DTP5P-KMEN Name=00 2012 D kmenové 5. semestr TZI prezen ní

| 2131512                   | Machine Elements and Mechanisms I.  | Z,ZK                  | 6                |
|---------------------------|---|-----------------------|------------------|
| Joints and joining ele    | ments (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotter    | s, keys). Mechanic    | al transmissions |
| (belt, chain, friction, g | lear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preload     | ed connecting bolt    | s, clamped,      |
| pressed, splined and      | key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple as        | ssembly units is als  | so indispensable |
| seminar work.             |   |                       |                  |
| 2141504                   | Electric Circuits and Electronics   | Z,ZK                  | 4                |
| Introduction into the     | ry of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators | of energy. El. Powe   | er and Energy.   |
| Introduction into elec    | ronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabiliz   | er, power control,    | operational      |
| amplifier). Analogue      | and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, microprocessor.              |                       |                  |
| 2372083                   | Measurement in Engineering  | KZ                    | 3                |
| Overview of sensor p      | rinciples for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and    | d verification of me  | asurement        |
| instruments.              |   |                       |                  |
| 2341014                   | Technology II.  | Z,ZK                  | 5                |
| mechanics of chip for     | mation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining ec      | onomics. Automati     | on of processes  |
| programming of man        | ufacture. Engineering metrology. Assembly techniques. Introduction to process planing.  |                       |                  |
| 2153005                   | Fundamentals of Energy Conversions  | Z                     | 1                |
| 2383001                   | Fundamentals of Law   | Z                     | 2                |
| Basic orientation in le   | gal system is a necessary part of professional equipment of each expert with university degree. The aim of this course is to pr       | ovide a view into the | ne Czech Legal   |
| Order, particular sou     | ces of law and system of law (branch of law), using tutorials, lectures, specialised literature and significant legal regulations. It | is necessary for st   | udents 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 lav | vs. At the same tim   | ne the course    |
| leads students to kno     | w some practical habits and processes while putting the law on, especially in domain of contracts and other important legal rela      | ationships and to m   | nake them read   |
|                           |   |                       |                  |

to prepare professional presentations and to understand basic structures between law and engineering

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.

231A107 Mechanics III.A ZK 4

Code of the group: 12DTP6P-KMEN

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

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 Vyhlídal, Jaromír Fišer Tomáš Vyhlídal Tomáš Vyhlídal (Gar.)   | Z,ZK       | 5       | 3P+15C+05L | *        | Р    |
| 2131026 | Machine Elements and Mechanisms II  Eliška Cézová, Zden k ešpíro, Martin Dub, Ji í Houkal, Jan Kanaval, František Lopot, Karel Petr, Jan Flek <b>František Lopot</b> František Lopot (Gar.) | ZK         | 3       | 3P+0C      | *        | Р    |
| 2141505 | Electrical machines and drives<br>Jan Chyský, Jaroslav Novák, Lubomír Musálek, Michael Valášek <b>Jaroslav</b><br><b>Novák</b> Jan Chyský (Gar.)  | Z,ZK       | 4       | 2P+0C+2L   | *        | Р    |
| 2133025 | Design František Lopot František Lopot František Lopot (Gar.)   | Z          | 4       | 0P+4C      | *        | Р    |
| 2381054 | Management and Economics of the Enterprise Olga Heralová, Št pánka Uli ná, Vladimír Brdek, Petr Žemli ka Olga Heralová (Gar.)   | Z,ZK       | 4       | 2P+2C      | *        | Р    |
| 2181026 | Momentum, Mass and Heat Transfer Martin Dostál, Vojt ch B Iohlav, Stanislav Solna, Jan Sko ilas, Tomáš Jirout, Adam Krupica, Ji í Moravec Tomáš Jirout Tomáš Jirout (Gar.)                  | Z,ZK       | 5       | 3P+1C      | *        | Р    |

Characteristics of the courses of this group of Study Plan: Code=12DTP6P-KMEN Name=00 2012 D kmenové 6. semestr TZI prezen ní

| 23/104/                    | Automatic Control   | Z,ZN                | 5                  | i |
|----------------------------|---|---------------------|--------------------|---|
| Automatic controllers ar   | e important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of auton | natic control theor | y and practice     | l |
| like transfer functions, o | pen versus closed loop control, design of controllers and frequency based analysis of control systems. The course also conce  | ntrates on logic co | ontrol and control | l |
| via programmable logic     | controllers. Some seminaries are arranged in laboratories where practical skills and control engineering methods are trained  | J. Students begin   | to work with       |   |
| MATLAB software as a       | common platform of control engineers.   |                     | l                  |   |

2131026 Machine Elements and Mechanisms II

Preliminary design, design calculations and aplication 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. curcuits. 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
Design, design calculations and their aplications 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 course is designed to give students the understanding of economic principles. The economical part of the course is consisted from: explanation of relationship between costs and revenues, expenses and income, concept of investment and calculations per product, presentation how to assemble a basic operating budget and explanation of the basic structure of the financial statements. The management introduces the basic managerial functions and their contents, the uses of network analysis in project management, with the application of multi-criteria decision, the basics of marketing and strategic management.

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 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 j e 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 |
|---------|---|------------|---------|-------|----------|------|
| 2383019 | Philosophical Issues Of Individual and Science  | Z          | 2       | 1P+1C | *        | PV   |
| 2383009 | Communication and Dealing with People  Jan Horejc Jan Horejc (Gar.)   | Z          | 2       | 1P+1C | *        | PV   |

| 2383008 Managerial Psychology | Z | 2 | 1P+1C | * | PV |
|-------------------------------|---|---|-------|---|----|
|-------------------------------|---|---|-------|---|----|

Characteristics of the courses of this group of Study Plan: Code=12B\*\*1Q-HUM Name=03 2012 bakalá ské povinn volitelné humanitární

| 2383019                  | Philosophical Issues Of Individual and Science   | Z                   | 2                |
|--------------------------|--|---------------------|------------------|
| 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 applie | s (with specific me | odifications) to |
| the activities of manage | rs. So you can't not communicate - you can only communicate badly, well and excellently.   |                     |                  |
| 2383008                  | Managerial Psychology  | Z                   | 2                |

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

Name of the group: 08 2012 bakalá ské 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<br>Michele Le Blanc, Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina<br>Procházková Ayyub, Hana Volejníková, Veronika Kratochvílová <b>Nina</b><br><b>Procházková Ayyub</b> | Z,ZK       | 2       | 0P+2C | *        | PV   |
| 2041063 | French - Bachelor Exam /FME Michaela Schusová, Dušana Jirovská Eliška Vítková Eliška Vítková (Gar.)   | Z,ZK       | 2       | 0P+2C | *        | PV   |
| 2041062 | German - Bachelor Exam / FME Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich Jaroslava Kommová   | Z,ZK       | 2       | 0P+2C | *        | PV   |
| 2041065 | Russian - Bachelor Exam / FME Eliška Vítková, Michaela Schusová, Hana Volejníková, Dušana Jirovská Eliška Vítková   | Z,ZK       | 2       | 0P+2C | *        | PV   |
| 2041064 | Spanish - Bachelor Exam / FME Eliška Vítková, Michaela Schusová, Jaime Andrés Villagómez Eliška Vítková   | Z,ZK       | 2       | 0P+2C | *        | PV   |

## Characteristics of the courses of this group of Study Plan: Code=12B\*\*4Q-BZJ S+T Name=08 2012 bakalá ské zkoušky z jazyk pro STR a TZIS

| 2041061                 | English-Bachelor Exam   | Z,ZK                   | 2                  |
|-------------------------|---|------------------------|--------------------|
| Mapped to the Commo     | n European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff | ficulties, to take par | rt in discussions, |
| to write a summary, a r | 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 Commo     | n European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff | ficulties, to take par | rt in discussions, |
| to write a summary, a r | 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 Commo     | n European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff | ficulties, to take par | rt in discussions, |
| to write a summary, a r | 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 Commo     | n European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff | ficulties, to take par | rt in discussions, |
| to write a summary, a r | 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 Commo     | Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff                      | ficulties, to take par | t in discussions,  |
| to write a summary, a r | 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<br>Ji i Fürst  | KZ         | 2       | 0P+2C | *        | PV   |
| 2112091 | Project  | KZ         | 2       | 0P+2C | *        | PV   |
| 2122091 | Department Project   | KZ         | 2       | 0P+2C | *        | PV   |
| 2132091 | Branch Project Roman Uhli  | KZ         | 2       | 0P+2C | *        | PV   |
| 2152091 | Deparmental Project  | KZ         | 2       | 0P+2C | *        | PV   |
| 2162091 | Project  | KZ         | 2       | 0P+2C | *        | PV   |
| 2182091 | Project Tomáš Jirout   | KZ         | 2       | 0P+2C | *        | PV   |
| 2222091 | Project  | KZ         | 2       | 0P+2C | *        | PV   |
| 2312091 | Project Michael Valášek  | KZ         | 2       | 0+2   | *        | PV   |
| 2322091 | Project Jakub Horník, Jana Sobotová, Ji í Cejp, Elena ižmárová, Pavlína Hájková, Stanislav Krum, Jan Kr il, Vladimír Mára, Jakub Horváth, Stanislav Krum                                       | KZ         | 2       | 0P+2C | *        | PV   |
| 2332091 | Project Bohumír Bedná, Barbora Bryksí Stunová, Jan ermák, Jaroslav ervený, Tomáš Gur ík, Aleš Herman, Ladislav Kola ík, Marie Kola íková, Viktor Kreibich, Ladislav Kola ík Aleš Herman (Gar.) | KZ         | 2       | 0P+2C | *        | PV   |
| 2342091 | Project Vladislav Andronov, Libor Beránek, František Holešovský, Tomáš Kellner, Michal Koptiš, Ji í Kyncl, Martin Kyncl, Jan Mádl, Petr Mikeš, Pavel Novák                                     | 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   |
| 2382091 | Specialization Project Vladimír Brdek, Ladislav Vaniš, Barbora Stieberová  | 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

| 2012001   |  |  |  |
|---|--|--|--|
| 2012091   | Project  | KZ   | 2  |
| 2112091   | Project  | KZ   | 2  |
| 2122091   | Department Project   | KZ   | 2  |
| The content of the  | e subject is given by the topic of bachelor's work after consultion with supervisor of bachelor work or the tuto   | or of the department.  |  |
| 2132091   | Branch Project   | KZ   | 2  |
| 2152091   | Deparmental Project  | KZ   | 2  |
| 2162091   | Project  | KZ   | 2  |
| Student will be info  | formed about basics of environmental engineering and creation of thermal comfort.  | ' '  |  |
| 2182091   | Project  | KZ   | 2  |
| Absolvent se sezn   | námí se základy oboru Procesní technika.   | ·  |  |
| 2222091   | Project  | KZ   | 2  |
| 2312091   | Project  | KZ   | 2  |
| In dividual animona   | ent  | ' '  |  |
| Individual asignme  | icii.  |  |  |
| 2322091   | Project  | KZ   | 2  |
| 2322091<br>On the basis of the  | Project le preliminary submission of a bachelor thesis the students, under supervision of their supervisors, prepare a rephasis on experimental technologies which can be applied in their bachelor theses. They can also mention a  | eview summarizing and evaluating the s   | studied literature                         |
| 2322091<br>On the basis of the with particular emp  | Project le preliminary submission of a bachelor thesis the students, under supervision of their supervisors, prepare a rephasis on experimental technologies which can be applied in their bachelor theses. They can also mention a  | eview summarizing and evaluating the s   | studied literature                         |
| 2322091<br>On the basis of the<br>with particular emp<br>knowledge or resu<br>2332091   | Project se preliminary submission of a bachelor thesis the students, under supervision of their supervisors, prepare a rephasis on experimental technologies which can be applied in their bachelor theses. They can also mention a sults.  Project  | eview summarizing and evaluating the s<br>planned experiment or evaluate hitherto          | studied literature<br>o obtained           |
| 2322091<br>On the basis of the<br>with particular emp<br>knowledge or resu  | Project  The preliminary submission of a bachelor thesis the students, under supervision of their supervisors, prepare a rephasis on experimental technologies which can be applied in their bachelor theses. They can also mention a ults.  Project  Project  | eview summarizing and evaluating the splanned experiment or evaluate hitherton KZ          | studied literature<br>o obtained<br>2      |
| 2322091 On the basis of the with particular empknowledge or resu 2332091 2342091 Work on specialize                               | Project  The preliminary submission of a bachelor thesis the students, under supervision of their supervisors, prepare a rephasis on experimental technologies which can be applied in their bachelor theses. They can also mention a ults.  Project  Project  | eview summarizing and evaluating the splanned experiment or evaluate hitherton KZ          | studied literature<br>o obtained<br>2      |
| 2322091 On the basis of the with particular empknowledge or resulus 2332091 2342091 Work on specialize 2352091                    | Project the preliminary submission of a bachelor thesis the students, under supervision of their supervisors, prepare a rephasis on experimental technologies which can be applied in their bachelor theses. They can also mention a sults.  Project Project ted tasks.                                | eview summarizing and evaluating the splanned experiment or evaluate hitherton KZ KZ       | studied literature<br>o obtained<br>2<br>2 |
| 2322091 On the basis of the with particular empknowledge or resulting 2332091 2342091 Work on specialized 2352091 2362091         | Project the preliminary submission of a bachelor thesis the students, under supervision of their supervisors, prepare a rephasis on experimental technologies which can be applied in their bachelor theses. They can also mention a ults.  Project Project ted tasks.  Specialization Project Project | eview summarizing and evaluating the splanned experiment or evaluate hitherton KZ KZ KZ    | studied literature o obtained  2 2 2       |
| 2322091 On the basis of the with particular empknowledge or resulting 2332091 2342091 Work on specialized 2352091 2362091 2372091 | Project the preliminary submission of a bachelor thesis the students, under supervision of their supervisors, prepare a rephasis on experimental technologies which can be applied in their bachelor theses. They can also mention a sults.  Project Project ted tasks.  Specialization Project        | eview summarizing and evaluating the splanned experiment or evaluate hitherton KZ KZ KZ KZ | studied literature of obtained  2 2 2 2    |

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

Name of the group: 11 2012 BTZI 6. sem bakalá ské 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 |
|---------|---|------------|---------|-------|----------|------|
| 2123991 | Bachelor Thesis   | Z          | 4       | 0P+0C | *        | PV   |
| 2133991 | Bachelor Thesis<br>Roman Uhlí   | Z          | 4       | 0P+0C | *        | PV   |
| 2163991 | Bachelor Thesis   | Z          | 4       | 0P+0C | *        | PV   |
| 2373991 | Bachelor Thesis   | Z          | 4       | 0P+0C | *        | PV   |
| 2313991 | Bachelor Thesis<br>Michael Valášek  | Z          | 4       | 0+0   | *        | PV   |
| 2113991 | Bachelor Thesis   | Z          | 4       | 0P+0C | *        | PV   |
| 2363991 | Bachelor Thesis   | Z          | 4       | 0P+0C | *        | PV   |
| 2153991 | Bachelor Thesis   | Z          | 4       | 0P+0C | *        | PV   |
| 2223991 | Bachelor Thesis   | Z          | 4       | 0P+0C | *        | PV   |
| 2323991 | Bachelor thesis   | Z          | 4       | 0P+6C | *        | PV   |
| 2183991 | Bachelor Thesis<br>Tomáš Jirout   | Z          | 4       | 0P+0C | *        | PV   |
| 2383991 | Bachelor Thesis   | Z          | 4       | 0P+0C | *        | PV   |
| 2333991 | Bachelor Thesis Jan Kudlá ek  | Z          | 4       | 0P+0C | *        | PV   |
| 2013991 | Bachelor Thesis   | Z          | 4       | 0P+0C | *        | PV   |
| 2353991 | Bachelor Thesis   | Z          | 4       |       | *        | PV   |

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

| 2123991            | Bachelor Thesis  | Z   | 4                  |
|--------------------|--|---|--------------------|
| 2133991            | Bachelor Thesis  | Z   | 4                  |
| 2163991            | Bachelor Thesis  | Z   | 4                  |
| Bachelor Thesis is | is final individual work. This work checks ability of logical independent technical thinking and treatment v | with technical materials. There is applied acqu | ired knowledge     |
| from previous stud | udy periods.   |   |                    |
| 2373991            | Bachelor Thesis  | Z   | 4                  |
| Each student will  | solve his individual theme under guiding of his individual supervising department specialist. Result is h    | is/her bachelor thesis.                         |                    |
| 2313991            | Bachelor Thesis  | Z   | 4                  |
| Individual assignn | ment   | ·   |                    |
| 2113991            | Bachelor Thesis  | Z   | 4                  |
| 2363991            | Bachelor Thesis  | Z   | 4                  |
| 2153991            | Bachelor Thesis  | Z   | 4                  |
| 2223991            | Bachelor Thesis  | Z   | 4                  |
| 2323991            | Bachelor thesis  | Z   | 4                  |
| Development of th  | the bachelor thesis on an assignment under the supervision.  | , ,   |                    |
| 2183991            | Bachelor Thesis  | Z   | 4                  |
| 2383991            | Bachelor Thesis  | Z   | 4                  |
| Work on specializ  | zed tasks related to the focus of a thesis.  | <u>'</u>  |                    |
| 2333991            | Bachelor Thesis  | Z   | 4                  |
| 2013991            | Bachelor Thesis  | Z   | 4                  |
| 2353991            | Bachelor Thesis  | Z   | 4                  |
| The course focuse  | ses on processing the final thesis within the scope of the assigned topic of the bachelor thesis. The stud   | ent is acquainted with the general principles o | f the final thesi: |

and during regular weekly consultations with the supervisor proceeds in the professional solution of the assigned problem and at the same time works on the actual text of the final thesis. In the course of the solution, the student completes a small oral presentation where the work in progress is presented.

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   | 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   | Z | 2 |
|-------------------------|---|---|---|
| The subject is mainly m | neant for high-school students for repetition of high-school physics. |   |   |
| 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:

| Note on the ( | Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members)  | Completion | Credits | Scope | Semester | Role |
|---------------|--|------------|---------|-------|----------|------|
|               | Tutors, <b>authors</b> and guarantors (gar.)   |            |         |       |          |      |
| 2046155       | English Conversation Michele Le Blanc, Eliška Vítková, Ilona Šímice, Nina Procházková Ayyub Nina Procházková Ayyub Michele Le Blanc (Gar.)   | Z          | 2       | 0P+2C | *        | ٧    |
| 2046156       | English Conversation Michele Le Blanc, Eliška Vítková, Ilona Šimice, Nina Procházková Ayyub Nina Procházková Ayyub   | Z          | 2       | 0P+2C | L        | V    |
| 2046071       | English - Lower Intermediate Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina Procházková Ayyub, Hana Volejníková, Veronika Kratochvílová   | Z          | 2       | 0P+2C | L        | V    |
| 2046070       | English - Lower Intermediate Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina Procházková Ayyub, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)         | Z          | 2       | 0P+2C | Z        | ٧    |
| 2046074       | English - Advanced Michele Le Blanc, Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina Procházková Ayyub, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.) | Z          | 2       | 0P+2C | Z        | ٧    |
| 2046075       | English - Advanced Michele Le Blanc, Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina Procházková Ayyub, Hana Volejníková, Veronika Kratochvílová Ilona Šimice                          | Z          | 2       | 0P+2C | L        | V    |
| 2046072       | English - Upper Intermediate Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina Procházková Ayyub, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)         | Z          | 2       | 0P+2C | Z        | V    |
| 2046073       | English - Upper Intermediate Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina Procházková Ayyub, Hana Volejníková, Veronika Kratochvílová Ilona Šimice                                  | Z          | 2       | 0P+2C | L        | V    |
| 2046068       | English - Beginners Eliška Vítková, Michaela Schusová, Ilona Šimice, Hana Volejníková, Veronika Kratochvílová <b>Michaela Schusová</b> Ilona Šimice (Gar.)                                   | Z          | 2       | 0P+2C | z        | V    |
| 2046069       | English - Beginners Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina Procházková Ayyub, Hana Volejníková, Veronika Kratochvílová Ilona Šimice   | Z          | 2       | 0P+2C | L        | V    |
| 2046126       | Czech Lower Intermediate  Jaroslava Kommová  | Z          | 2       | 0P+2C | L        | V    |
| 2046125       | Czech Lower Intermediate  Jaroslava Kommová  | Z          | 2       | 0P+2C | Z        | V    |
| 2046118       | Czech -Advanced Jaroslava Kommová  | Z          | 2       | 0P+2C | L        | V    |
| 2046117       | Czech -Advanced<br>Jaroslava Kommová   | Z          | 2       | 0P+2C | Z        | V    |
| 2046127       | Czech - Upper Intermediate  Jaroslava Kommová  | Z          | 2       | 0P+2C | Z        | V    |
| 2046128       | Czech - Upper Intermediate  Jaroslava Kommová  | Z          | 2       | 0P+2C | L        | V    |
| 2046119       | Czech Language for Beginners I.  Jaroslava Kommová   | Z          | 2       | 0P+2C | Z        | V    |
| 2046120       | Czech Language for Beginners II.  Jaroslava Kommová  | Z          | 2       | 0P+2C | L        | V    |

| 2046086 | French - Lower Intermediate Course Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)  | Z    | 2 | 0P+2C | Z | V |
|---------|---|------|---|-------|---|---|
| 2046087 | French - Lower Intermediate Course Michaela Schusová, Dušana Jirovská Dušana Jirovská   | Z    | 2 | 0P+2C | L | V |
| 2046091 | French - Advanced Michaela Schusová, Dušana Jirovská Dušana Jirovská  | Z    | 2 | 0P+2C | L | V |
| 2046090 | French - Advanced  Eliška Vítková, Michaela Schusová, Dušana Jirovská Eliška Vítková Eliška Vítková (Gar.)  | Z    | 2 | 0P+2C | Z | V |
| 2046089 | French - Upper Intermediate Michaela Schusová, Dušana Jirovská Dušana Jirovská  | Z    | 2 | 0P+2C | L | V |
| 2046088 | French - Upper Intermediate Eliška Vítková, Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)                               | Z    | 2 | 0P+2C | Z | V |
| 2046084 | French - Beginners Michaela Schusová, Dušana Jirovská Michaela Schusová (Michaela Schusová (Gar.)   | Z    | 2 | 0P+2C | Z | V |
| 2046085 | French - Beginners´ Course Michaela Schusová, Dušana Jirovská Michaela Schusová (Gar.)  Schusová (Gar.)   | 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 Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)        | Z    | 2 | 0P+2C | Z | V |
| 2046079 | German - Lower Intermediate Course Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich Eliška Vítková                                    | Z    | 2 | 0P+2C | L | V |
| 2046083 | German - Advanced Course Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich Jaroslava Kommová   | Z    | 2 | 0P+2C | L | V |
| 2046082 | German - Advanced Course Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)                  | Z    | 2 | 0P+2C | Z | V |
| 2046081 | German - Upper Intermediate Course Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich Eliška Vítková                                    | Z    | 2 | 0P+2C | L | V |
| 2046080 | German - Upper Intermediate Course Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich <b>Michaela</b> Schusová Michaela Schusová (Gar.) | Z    | 2 | 0P+2C | Z | V |
| 2046076 | German - Beginners<br>Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich <b>Michaela</b><br>Schusová Michaela Schusová (Gar.)           | Z    | 2 | 0P+2C | Z | V |
| 2046077 | German - Beginners<br>Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich Eliška<br>Vítková  | Z    | 2 | 0P+2C | L | V |
| 2046161 | Presentations in English Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina Procházková Ayyub Michaela Schusová Michaela Schusová (Gar.)             | Z    | 2 | 0P+2C | * | V |
| 2046166 | Presentations in Czech Eliška Vítková, Jaroslava Kommová, Petr Laurich Jaroslava Kommová Petr Laurich (Gar.)  | Z    | 2 | 0P+2C | * | V |
| 2046162 | Presentations in German  Eliška Vítková, Jaroslava Kommová, Petr Laurich Jaroslava Kommová  Eliška Vítková (Gar.)                                       | Z    | 2 | 0P+2C | * | V |
| 2046164 | Presentations in Russian Eliška Vítková, Dušana Jirovská Dušana Jirovská (Gar.)   | Z    | 2 | 0P+2C | * | V |
| 2046163 | Presentations in French language<br>Eliška Vítková, Dušana Jirovská <b>Dušana Jirovská</b> Dušana Jirovská (Gar.)                                       | Z    | 2 | 0P+2C | * | V |
| 2046165 | Presentations in Spanish Eliška Vítková Eliška Vítková  | Z    | 2 | 0P+2C | * | V |
| 2046137 | Russian - Lower Intermediate Course  Eliška Vítková, Michaela Schusová, Hana Volejníková, Dušana Jirovská  Michaela Schusová Michaela Schusová (Gar.)   | Z    | 2 | 0P+2C | Z | V |
| 2046138 | Russian - Lower Intermediate Course<br>Michaela Schusová, Hana Volejníková, Dušana Jirovská Dušana Jirovská   | Z    | 2 | 0P+2C | L | V |
| 2046141 | Russian - Advanced Eliška Vítková, Michaela Schusová, Hana Volejníková, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)                      | Z    | 2 | 0P+2C | Z | V |
| 2046142 | Russian - Advanced<br>Michaela Schusová, Hana Volejníková, Dušana Jirovská <b>Dušana Jirovská</b>   | Z    | 2 | 0P+2C | L | V |
| 2046140 | Russian - Upper Intermediate<br>Michaela Schusová, Hana Volejníková, Dušana Jirovská <b>Dušana Jirovská</b>   | Z    | 2 | 0P+2C | L | V |
| 2046139 | Russian - Upper Intermediate Eliška Vítková, Michaela Schusová, Hana Volejníková, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)            | Z    | 2 | 0P+2C | Z | V |

| 2046136 | Russian - Beginners<br>Michaela Schusová, Hana Volejníková, Dušana Jirovská <b>Dušana Jirovská</b>                                  | Z | 2 | 0P+2C | L | V |
|---------|---|---|---|-------|---|---|
| 2046135 | Russian - Beginners Eliška Vítková, Michaela Schusová, Hana Volejníková, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.) | Z | 2 | 0P+2C | Z | V |
| 2046099 | Spanish - Lower Intermediate Michaela Schusová, Jaime Andrés Villagómez Eliška Vítková  | Z | 2 | 0P+2C | L | V |
| 2046098 | Spanish - Lower Intermediate Eliška Vítková, Michaela Schusová, Jaime Andrés Villagómez Eliška Vítková Eliška Vítková (Gar.)        | Z | 2 | 0P+2C | Z | V |
| 2046096 | Spanish - Beginners Eliška Vítková, Michaela Schusová, Jaime Andrés Villagómez Eliška Vítková Eliška Vítková (Gar.)                 | Z | 2 | 0P+2C | Z | V |
| 2046097 | Spanish - Beginners Michaela Schusová, Jaime Andrés Villagómez Jaime Andrés Villagómez  | Z | 2 | 0P+2C | L | V |

Characteristics of the courses of this group of Study Plan: Code=12B\*\*1V-DOP ZJK Name=06 2012 doporu ené základní jazykové kurzy a prezentace

| kurzy a prezentace   |  |  |
|--|--|--|
| 2046155 English Conversation   | Z  | 2  |
| Improving communicative skills in speaking on general topics and general technical topics.   | 1 1  |  |
| 2046156 English Conversation   | Z  | 2  |
| Improving communicative skills in speaking on general topics and general technical topics.   | 1 1  |  |
| 2046071 English - Lower Intermediate   | Z  | 2  |
| Mapped to the Common European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situa  | tions 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  |  |  |
| 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 speakin  | g about them. Writing in a sin   | nple way about   |
| familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.   |  |  |
| 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 disci   | ussion. 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 s   | tudent's field of studies without  | out 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 lecture  | s given in English without gre   | eat difficulties   |
| and active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading a   | nd comprehension of popula   | r-scientific and   |
| scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.   |  |  |
| 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 a   | 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 profe  | essional English and commor  | n professional   |
| terminology. Comprehension of standard English speech and conversation about topics of everyday life - at school, at work, during free times.  | e, on intermediate level. Broa   | dening grammai   |
| knowledge.   |  |  |
| 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 terms  | minology (professional langua  | age). 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 ba  | asic expressions   |
| of general scientific terminology (professional language).   |  |  |
|  |  |  |
| 2046126 Czech 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 speakin  |  | _  |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  | g about them. Writing in a sin   | nple way about   |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046125 Czech Lower Intermediate  | g about them. Writing in a sin   | nple way about   |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046125   | g about them. Writing in a sin   | nple way about   |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046125   | g about them. Writing in a sin   | nple way about  2 nple way about   |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046125   | g about them. Writing in a sin   | nple way about  2 nple way about   |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046125  | g about them. Writing in a sin  Z g about them. Writing in a sin  Z Z s given in Czech without grea  | nple way about  2 nple way about  2 at difficulties and  |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046125   | g about them. Writing in a sin  Z g about them. Writing in a sin  Z Z s given in Czech without grea  | nple way about  2 nple way about  2 at difficulties and  |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046125  | g about them. Writing in a sin  Z g about them. Writing in a sin  Z s given in Czech without greacomprehension of popular-sc   | at difficulties and  |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  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 speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046118   Czech -Advanced  Mapped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lecture active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046117   Czech -Advanced  | g about them. Writing in a sin  Z g about them. Writing in a sin  Z s given in Czech without greacomprehension of popular-sc   | at difficulties and ientific and   |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  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 speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046118   Czech -Advanced  Mapped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lecture active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046117   Czech -Advanced  Comprehension of spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, par  | g about them. Writing in a sin  Z g about them. Writing in a sin  Z s given in Czech without great comprehension of popular-so  Z ticipation in discussions. Expr  | at difficulties and ientific and   |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  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 speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046118   Czech -Advanced  Mapped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lecture active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046117   Czech -Advanced  Comprehension of spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, par Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and  | g about them. Writing in a sin  Z g about them. Writing in a sin  Z s given in Czech without great comprehension of popular-scomprehension in discussions. Expretechnical articles.  | at difficulties and cientific and 2  |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  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 speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046118   Czech -Advanced  Mapped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lecture active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046117   Czech -Advanced  Comprehension of spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, par Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and 2046127   Czech - Upper Intermediate   | g about them. Writing in a single graph of the graph of  | anple way about  2  Inple way about  2  Inple way about  2  Inple way about  2  In ple way about  2   |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  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 speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046118   Czech -Advanced  Mapped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lecture active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046117   Czech -Advanced  Comprehension of spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, par Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and 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  | g about them. Writing in a single graph of the graph of  | anple way about  2  Inple way about  2  Inple way about  2  Inple way about  2  In ple way about  2   |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  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 speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046118   Czech -Advanced  Mapped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lecture active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046117   Czech -Advanced  Comprehension of spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, par Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and 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 events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.   | g about them. Writing in a sin  Z g about them. Writing in a sin  Z s given in Czech without great comprehension of popular-scomprehension in discussions. Expression articles.  Z topics. Ability to describe exp   | anple way about  2  Inple way about  4  Inple  |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  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 speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046118   Czech -Advanced  Mapped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lecture active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046117   Czech -Advanced  Comprehension of spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, par Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and 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 events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  2046128   Czech - Upper Intermediate   | g about them. Writing in a single graph of them. Writing in a single graph of them. Writing in a single graph of the graph | anple way about  2  Inple way about  2   |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  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 speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046118   Czech -Advanced  Mapped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lecture active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046117   Czech -Advanced  Comprehension of spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, par Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and  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 events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  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 language skills taking into | g about them. Writing in a single graph of them. Writing in a single graph of them. Writing in a single graph of the graph | anple way about  2 Inple way about  3 Inple way about  4 Inple way abo |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  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 speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046118   Czech -Advanced  Mapped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lecture active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046117   Czech -Advanced  Comprehension of spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, par Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and  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 events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  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 perminology. Comprehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time.   | g about them. Writing in a single graph of them. Writing in a single graph of them. Writing in a single graph of the graph | anple way about  2 Inple way about  3 Inple way about  4 Inple way abo |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speakin familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046125   | g about them. Writing in a single graph of them. Writing in a single graph of them. Writing in a single graph of the graph | anple way about  2 Inple way about  3 Inple way about  4 Inple way abo |
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|  | French - Lower Intermediate Course   |  |  |
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| -  | omprehension of simple texts. Improvement of professional language.  | 7  | 2  |
| 2046087  | French - Lower Intermediate Course   | Z  | 2  |
| • •  | f Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which   |  |  |
|  | speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement   |  |  |
| 2046091  | French - Advanced  | Z  | 2  |
| • • •  | f Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on to   | •  |  |
|  | ative speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a<br>pular scientific and technical articles.  | ind understanding  | texts concerning   |
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| 2046090  | French - Advanced    French - Advanced   French - Advanced   French on topics familiar to the student. Communication with native speakers, participation   | Z Z  | 2<br>Everossing  |
|  | s. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to  |  | _xpressing   |
| 2046089  | French - Upper Intermediate  | Z  | 2  |
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|  | alking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understaining about these topics.   |  |  |
| 2046088  | French - Upper Intermediate  | 7  | 2  |
|  | referior - Opper intermediate<br>and speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abil   | . – .  | _  |
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| 2046084  | French - Beginners   | Z  | 2  |
|  | what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. W  | _  |  |
|  | omprehension of simple texts. Improvement of professional language.  | riting in a simple w   | ay about lamillar  |
| 2046085  | French - Beginners´ Course   | Z  | 2  |
|  | French - Beginners Course<br>  Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which  |  | _  |
|  | speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement   |  |  |
| 2146060  |  | Z  | 2  |
|  | Indonesian Language Course for Exchange<br>anguage for Student Exchange Program to Indonesia   |  | 2  |
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| 2146061  | Technical Indonesian - Course I.   | Z  | 2  |
| •  | esian Language for Student Exchange Program to Indonesia   | 7 714  |  |
| 2144062  | Technical Indonesian - Course II.  | Z,ZK   | 3  |
|  | anguage for Student Exchange Program to Indonesia  |  |  |
| 2046078  | German - Lower Intermediate Course   | Z  | 2  |
| -  | learly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the   | em. Writing in a sin   | nple way about   |
| · · · · · · · · · · · · · · · · · · ·  | g and comprehension of simple texts. Improvement of professional language.   |  |  |
| 2046079  | German - Lower Intermediate Course   | Z  | 2  |
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| Mapped to the level of   | Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which   |  |  |
| Mapped to the level of or in his/her free time   | and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement  | ent of professional  | language.  |
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| Mapped to the level of or in his/her free time 2046083 Mapped to the level of and active participation scientific articles or the 2046082 Comprehension of spopinions. Written skills 2046081 Mapped to the level of during free time, and the 2046080 Understanding standate events, briefly explain 2046076 Basic vocabulary of events active terms 2046077 Mapped to the level Congeneral scientific terms 2046161 Preparing students to 2046166 Preparation for present 2046163 Preparation for present 2046163 Preparation for present 2046165  | and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvemed German - Advanced Course Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compretes from student's field of studies without difficulties. Grammar structures on advanced level.  German - Advanced Course Oken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participate. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to German - Upper Intermediate Course Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar topics, that a students of alking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding general and technical texts.  German - Upper Intermediate Course or speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability one's opinions and plans. Reading and understanding general and technical texts.  German - Beginners  German - Beginners  German - Beginners  German - Beginners  Meropean Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding inology (professional language).  Presentations in English  present in English on technical topics, with a possible co-operation with specialized departments.  Presentations in German  ting technical topics in German, possibly in cooperation with specialized departments.  Presentations in Russian  ting technical topics in French language  ting technical topics in French language  | ent of professional Z n German without rehension of popular Z tion in discussions. echnical articles. Z comes across at wanding general and Z lity to describe exp Z ssional language) Z and use of basic of Z Z Z Z Z Z   | language.  2 great difficulties ar-scientific and  2 Expressing  2 ork, at school, d technical texts.  2 eriences and  2 expressions of  2 2 2 2 2 2 2 2 |
| Mapped to the level of or in his/her free time 2046083 Mapped to the level of and active participation scientific articles or the 2046082 Comprehension of spopinions. Written skills 2046081 Mapped to the level of during free time, and the 2046080 Understanding standate events, briefly explain 2046076 Basic vocabulary of events active terms 2046077 Mapped to the level Congeneral scientific terms 2046161 Preparing students to 2046166 Preparation for present 2046163 Preparation for present 2046163 Preparation for present 2046165  | and speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts. Improvemed German - Advanced Course Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprets from student's field of studies without difficulties. Grammar structures on advanced level.  German - Advanced Course Oken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participal to Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to German - Upper Intermediate Course Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students oalking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding general and technical texts.  German - Upper Intermediate Course and speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability one's opinions and plans. Reading and understanding general and technical texts.  German - Beginners  Veryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professional language).  Presentations in English  presentations in English on technical topics, with a possible co-operation with specialized departments.  Presentations in German  ting technical topics in German, possibly in cooperation with specialized departments.  Presentations in French language  ting technical topics in Russian, possibly in cooperation with specialized departments.  Presentations in French, possibly in cooperation with specialized departments.  Presentations in Spanish  ting technical topics in Spanish, possibly in cooperation with specialized | ent of professional Z n German without rehension of popular Z tion in discussions. echnical articles. Z comes across at wanding general and Z lity to describe exp Z ssional language) Z and use of basic of Z Z Z Z Z Z   | language.  2 great difficulties ar-scientific and  2 Expressing  2 ork, at school, d technical texts.  2 eriences and  2 expressions of  2 2 2 2 2 2 2 2 |
| Mapped to the level of or in his/her free time 2046083 Mapped to the level of and active participation scientific articles or the 2046082 Comprehension of spopinions. Written skills 2046081 Mapped to the level of during free time, and the 2046080 Understanding standate events, briefly explain 2046076 Basic vocabulary of ereconstruction of the level of general scientific term 2046161 Preparing students to 2046166 Preparing students to 2046164 Preparation for present 2046163 Preparation for present 2046165 Preparation for present 2046165 Preparation for present 2046137  | and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvemed German - Advanced Course Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compretes from student's field of studies without difficulties. Grammar structures on advanced level.  German - Advanced Course oken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participal at a half to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to German - Upper Intermediate Course Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar topics, that a student stalking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding standard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability one's opinions and plans. Reading and understanding general and technical texts.  German - Beginners veryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professional language).  Presentations in English presentations in English on technical topics, with a possible co-operation with specialized departments.  Presentations in German ting technical topics in German, possibly in cooperation with specialized departments.  Presentations in French language ting technical topics in Russian ting technical topics in French, possibly in cooperation with specialized departments.  Presentations in French, possibly in cooperation with specialized departments.  | ent of professional    Z     n German without rehension of popular in discussions. echnical articles.     Z     Z     Comes across at wanding general and Z     Z     Sisional language)     Z | language.  2 great difficulties ar-scientific and  2 Expressing  2 ork, at school, d technical texts.  2 eriences and  2 expressions of  2 2 2 2 2 2 2 2 |

| 2046138               | Russian - Lower Intermediate Course   | 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 sch   | nool or in his/h |
| ree time and speak    | king about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of p         | rofessional language.    |                  |
| 2046141               | Russian - Advanced  | Z                        | 2                |
| Comprehension of s    | spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, partic        | ipation in discussions.  | Expressing       |
| pinions. Written sk   | ills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific al    | nd technical articles.   |                  |
| 2046142               | Russian - Advanced  | Z                        | 2                |
| 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 th | e student.       |
| Communication with    | h native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Readir | ng and understanding     | exts concernir   |
| urrant issues and p   | popular scientific and technical articles.  |                          |                  |
| 2046140               | Russian - Upper Intermediate  | Z                        | 2                |
| Napped to the level   | of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a studi                | ent meets at work, at s  | chool, during    |
| ee time, and talkin   | g about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and under       | erstanding general and   | l technical text |
| 2046139               | Russian - Upper Intermediate  | Z                        | 2                |
| Inderstanding stan    | dard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics.       | Ability to describe exp  | eriences and     |
| vents, briefly expla  | in one's opinions and plans. Reading and understanding general and technical texts.   |                          |                  |
| 2046136               | Russian - Beginners   | Z                        | 2                |
| Napped to the level   | of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Underst               | anding and use of bas    | ic expressions   |
| of general scientific | terminology (professional language)   |                          |                  |
| 2046135               | Russian - Beginners   | Z                        | 2                |
| Basic vocabulary of   | everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (pr        | ofessional language)     |                  |
| 2046099               | Spanish - Lower Intermediate  | Z                        | 2                |
| Napped to the level   | of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a                 | a student meets at sch   | ool or in his/he |
| ree time and speak    | ring about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of p         | rofessional language.    |                  |
| 2046098               | Spanish - Lower Intermediate  | Z                        | 2                |
| Jnderstanding clea    | rly 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 w  | ay about famili  |
| opics. Reading and    | l comprehension of simple texts. Improvement of professional language.  |                          |                  |
| 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 sim   | ple way abou     |
| amiliar topics. Read  | ding and comprehension of simple texts. Improvement of professional language.   |                          |                  |
| 2046097               | Spanish - Beginners   | Z                        | 2                |
| Mapped to the Com     | mon European Framework of Reference Level A1. Aim: Understanding clearly what is spoken about everyday situations whi               | ch a student meets at    | school or in     |
|                       |   |                          |                  |

## List of courses of this pass:

| Code                  | Name of the course   | Completion            | Credits       |
|-----------------------|--|-----------------------|---------------|
| 2011009               | Mathematics III  | Z,ZK                  | 5             |
|                       | An introductory course in ordinary differential equation and infinite series.  |                       | '             |
| 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 relati                  |                       | '             |
| 2011049               | Numerical Mathematics  | Z,ZK                  | 4             |
| Numerical solution    | of systems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerica         | l solution of ordinar | y differentia |
|                       | equations, initial and boundary value problems. Numerical solution of basic linear partial differential equations by finite difference         | method.               |               |
| 2011056               | Mathematics I  | Z,ZK                  | 8             |
| In the course, great  | ter emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connection          | ns between concep     | ts. Students  |
| will also get to know | v the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: 0      | eigennumbers and e    | eigenvectors  |
|                       | of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.   |                       |               |
| 2011062               | Matematika II.   | Z,ZK                  | 8             |
| Open and closed       | set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differen   | tial operators div (d | livergence)   |
| and curl (rotation).  | Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, | Fubini theorem. Tra   | nsformation   |
| of integrals to pola  | r, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Gree        | n's theorem. A pote   | ential vector |
| field, independen     | ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vect       | or field through a s  | urface. The   |
|                       | Gauss-Ostrogradskij theorem.   |                       |               |
| 2012035               | Algorithmization and Programming Fundamentals  | KZ                    | 4             |
| Programming in        | MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Matı                       | rices, vectors and c  | perations.    |
|                       | nput and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Syste              | •                     |               |
|                       | ructure of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. S          | 0                     |               |
|                       | s: minimum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of              | systems of linear e   | quations.     |
| 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  The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relation   | ZK                    | 3              |
|---|--|-----------------------|----------------|
| 201A049                                 | Numerical Mathematics A  | ZK                    | 2              |
| 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  |                       | 1              |
| 201A062                                 | Mathematics II.A   | ZK                    | 4              |
| =                                       | t, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differential   |                       |                |
|   | action given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, l   |                       |                |
|   | cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Greer<br>of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vecto  | •                     |                |
| iicia, iriacperiacrice                  | Gauss-Ostrogradskij theorem.   | i noia unougii a i    | Juliacc. Tric  |
| 2021025                                 | Physics II.  | Z,ZK                  | 4              |
| l l                                     | omagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of elec  | ,                     | 1              |
| -                                       | er. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and   | _                     |                |
| pectra, x-rays, ;laser                  | . Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 exper   | iments related to     | the lecture    |
| 2021041                                 | Physics I.   | Z,ZK                  | 7              |
|   | nics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic pro  |                       |                |
|   | nanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co  |                       |                |
| isulators. Magnetic f                   | ield. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect and | ct measurements       | , regression   |
| 2026046                                 | measurements of 11 various experiments related to the lectures.  | 7                     | 1 2            |
| 2026016                                 | Physics - Seminar The subject is mainly meant for high-school students for repetition of high-school physics.  | Z                     | 2              |
| 202A025                                 | Physics II.A   | ZK                    | 2              |
| l l                                     | FTIYSICS TLA omagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of elec   |                       | I              |
| · · · · · · · · · · · · · · · · · · ·   | ter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and  | _                     |                |
|   | Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 exper   | •                     |                |
| 202A041                                 | Physics I.   | ZK                    | 3              |
| l l                                     | nics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic pro  |                       |                |
| waves. Fluid mech                       | nanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co  | nductors, semico      | nductors,      |
| sulators. Magnetic f                    | ield. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect  | ct measurements       | , regressio    |
|   | measurements of 11 various experiments related to the lectures.  |                       | 1              |
| 2041061                                 | English-Bachelor Exam  | Z,ZK                  | 2              |
| apped to the Commo                      | on European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult  | ies, to take part ir  | discussion     |
| 0044000                                 | to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.   | 7.71                  |                |
| 2041062                                 | German - Bachelor Exam / FME   | Z,ZK                  | 2              |
| apped to the Commi                      | on European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult<br>to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.  | ies, to take part ii  | i discussioi i |
| 2041063                                 | French - Bachelor Exam /FME  | Z,ZK                  | 2              |
|   | on European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult  | •                     | I              |
| .,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | 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              |
| lapped to the Commo                     | on European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult  | ies, to take part ir  | discussion     |
|   | 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              |
| apped to the Commo                      | on European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult  | ies, to take part ir  | discussion     |
|   | to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.   |                       |                |
| 2046068                                 | English - Beginners  | Z                     | 2              |
|   | ulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (p   | rofessional langu     | <del> </del>   |
| 2046069                                 | English - Beginners  |                       | 2              |
| apped to the Comm                       | on European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding of general scientific terminology (professional language).  | and use of basic      | expression     |
| 2046070                                 | English - Lower Intermediate   | Z                     | 2              |
|   | learly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.   |                       | 1              |
| onderetaining t                         | familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.   | ···                   | o nay abou     |
| 2046071                                 | English - Lower Intermediate   | Z                     | 2              |
|   | non European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which a s  |                       | 1              |
| or at his/her free tin                  | ne and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improveme  | nt of professional    | language.      |
| 2046072                                 | English - Upper Intermediate   | Z                     | 2              |
| ne aim is to extend la                  | anguage skills taking into consideration professional English and common professional terminology. Comprehension of standard En  | glish speech and      | conversation   |
|   | about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 -  |                       |                |
| 2046073                                 | English - Upper Intermediate   | Z                     | 2              |
|   | mon European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional English  |                       |                |
| rminology. Compreh                      | ension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermedia   | ate level. Broader    | ning gramm     |
| 0040074                                 | knowledge.   |                       |                |
| 2046074                                 | English - Advanced   | Z                     | 2              |
| The eight erement                       |  | France Otal Chillic V | n anvanced     |
| =                                       | ision of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Writter<br>a summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's field  |                       |                |

| 2046075  | English - Advanced   | Z  | 2  |
|--|--|--|--|
|  | ommon European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in Eng   | _  |  |
| and active particip  | eation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and comprehen scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  | sion of popular-sci  | cientific and  |
| 2046076  | German - Beginners   | 7  | 2  |
|  | German - Degrimers<br>abulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (pr  | Z  | ' '  |
| 2046077  | German - Beginners   | 7  | 2  |
|  | el Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding and   |  | !  |
| mapped to the lev  | general scientific terminology (professional language).  | a doo or bacic oxpr  | 100010110 01   |
| 2046078  | German - Lower Intermediate Course   | Z  | 2  |
|  | og clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.   | ا<br>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  |
| * *  | of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a s  |  |  |
|  | e time and speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts. Improvemen  |  |  |
| 2046080  | German - Upper Intermediate Course andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability t   | Z Z  | 2<br>ences and   |
| Oriderstanding sta   | events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.   | o describe experie   | ences and  |
| 2046081  | German - Upper Intermediate Course   | Z  | 2  |
|  | rel of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students com-  | I  | ' '  |
| during free time, an   | nd talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding   | g general and tecl   | hnical texts.  |
| 2046082  | German - Advanced Course   | Z  | 2  |
| •  | of spoken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participation  |  |  |
|  | Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a  |  |  |
| 2046083  | German - Advanced Course   | Z  | 2  |
| • • •  | el of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in Ge<br>ation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compreher  |  |  |
| and active participa   | scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.   | ision of popular-sc  | Dientine and   |
| 2046084  | French - Beginners   | 7  | 2  |
|  | arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing   | _  |  |
|  | topics. Reading and comprehension of simple texts. Improvement of professional language.   |  |  |
| 2046085  | French - Beginners' Course   | Z  | 2  |
| * *  | rel of Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which a s  | student meets at se  | chool or in  |
| his/her tree tim   |  |  |  |
|  | ne and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement  | of professional lan  |  |
| 2046086  | French - Lower Intermediate Course   | Z  | 2  |
| 2046086  | French - Lower Intermediate Course arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing  | Z  | 2  |
| 2046086<br>Understanding clea  | French - Lower Intermediate Course arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing topics. Reading and comprehension of simple texts. Improvement of professional language.   | Z<br>in a simple way ab  | 2<br>bout familiar   |
| 2046086<br>Understanding clean<br>2046087  | French - Lower Intermediate Course arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing  | Z in a simple way ab   | 2<br>bout familiar   |
| 2046086 Understanding clea 2046087 Mapped to the lev   | French - Lower Intermediate Course arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing topics. Reading and comprehension of simple texts. Improvement of professional language.  French - Lower Intermediate Course   | Z in a simple way ab  Z student meets at s   | 2 bout familiar 2 school or in   |
| 2046086<br>Understanding clea<br>2046087<br>Mapped to the lev<br>his/her free tim<br>2046088   | French - Lower Intermediate Course arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing topics. Reading and comprehension of simple texts. Improvement of professional language.  French - Lower Intermediate Course rel of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a see and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of the speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of the speaking about them.  | Z in a simple way at  Z student meets at so of professional lan Z  | 2 chool or in aguage.  |
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| 2046086 Understanding clear  2046087 Mapped to the lev his/her free tim 2046088 Understanding state 2046089 Mapped to the lev during free time, ar 2046090 Comprehension opinions. V. 2046091 Mapped to the lev during tree time ar 2046096 Aim:Understanding clear 2046098 Understanding clear 2046099  | French - Lower Intermediate Course arty what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing topics. Reading and comprehension of simple texts. Improvement of professional language.  French - Lower Intermediate Course el of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a stee and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of French - Upper Intermediate  andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  French - Upper Intermediate  French - Upper Intermediate  French - Upper Intermediate  French - Upper Intermediate  of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students come datalking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding  French - Advanced  of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participation written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and French - Advanced  level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on top in 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 speaking about them. Viriting and technical articles.  Spanish - Beginners  g 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 | in a simple way at a simple way at a simple way at a student meets at sof professional lan a simple way at a s | 2 chool or in inguage.  2 at school, hnical texts.  2 cpressing es.  2 student. concerning  2 way about  2 chool or in inguage.  2 chool or in inguage.  2 chool or in inguage.  2 cout familiar  2  |
| 2046086 Understanding clear 2046087 Mapped to the lev his/her free tim 2046088 Understanding state 2046089 Mapped to the lev during free time, ar 2046090 Comprehension opinions. V. 2046091 Mapped to the I Communication wit 2046096 Aim:Understanding clear 2046098 Understanding clear 2046099 Mapped to the I ceveral 2046099   | French - Lower Intermediate Course arry what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing topics. Reading and comprehension of simple texts. Improvement of professional language.  French - Lower Intermediate Course rel of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a see and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of French - Upper Intermediate  andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to events, briefly explain one so opinions and plans. Reading and understanding general and technical texts.  French - Upper Intermediate rel of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar topics, that a students come at talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding French - Advanced  of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participation written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a French - Advanced  level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on top the 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.  Spanish - Beginners  g 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 | Z in a simple way at the student meets at so of professional lan Z to describe experience and technical article Z in discussions. Expended article Z in discussions. Expended article Z in discussions article Z in a simple way at the simple way a | 2 chool or in inguage.  2 ences and  2 ences |
| 2046086 Understanding clear 2046087 Mapped to the lev his/her free tim 2046088 Understanding state 2046089 Mapped to the lev during free time, ar 2046090 Comprehension opinions. V. 2046091 Mapped to the I Communication wit 2046096 Aim:Understanding clear 2046098 Understanding clear 2046099 Mapped to the I ceveral 2046099   | French - Lower Intermediate Course arry what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing topics. Reading and comprehension of simple texts. Improvement of professional language.  French - Lower Intermediate Course el of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a situation and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement.  French - Upper Intermediate  andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  French - Upper Intermediate  el of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students come dtalking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding ference - Advanced  of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participation written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on top the 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.  Spanish - Beginners  glearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking abou | Z in a simple way at the student meets at so of professional lan Z to describe experience and technical article Z in discussions. Expended article Z in discussions. Expended article Z in discussions article Z in a simple way at the simple way a | 2 chool or in inguage.  2 ences and  2 ences |
| 2046086 Understanding clear  2046087 Mapped to the level his/her free time 2046089 Mapped to the level during free time, are 2046090 Comprehension opinions. V. 2046091 Mapped to the level during tree time, are 2046096 Aim:Understanding clear  2046097 Mapped to the Communication with 2046097 Mapped to the Communication with 2046098 Understanding clear  2046099 Mapped to the level free time a 2046117  | French - Lower Intermediate Course arrly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing topics. Reading and comprehension of simple texts. Improvement of professional language.  French - Lower Intermediate Course el of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a sea and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement.  French - Upper Intermediate andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  French - Upper Intermediate el of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar topics, that a students come dia talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding devents of the student. Communication with native speakers, participation written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a French - Advanced level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on topic the 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.  Spanish - Beginners  g 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.  Spanish - Lower Intermediate  arry what is spoken about  | in a simple way at a student meets at sof professional lan a sacross at work, g general and technical article a sics familiar to the inderstanding texts a sof professional lan a simple a simple way at a second professional langua a simple a simple way at a second professional langua a simple a simple way at a second professional langua a simple way at a simple way | 2 chool or in inguage.  2 at school, hnical texts.  2 cpressing es.  2 student. concerning  2 way about  2 chool or in inguage.  2 chool or in inguage.  2 cout familiar  2 or in his/her age.  2  |

| 2046118              | Czech -Advanced   | Z                       | 2             |
|----------------------|---|-------------------------|---------------|
|                      | l of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czec  | _                       |               |
| active participation | on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehens<br>scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.   | ion of popular-sciei    | ntific and    |
| 2046119              | Czech Language for Beginners I.   | Z                       | 2             |
|                      | bulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p   |                         |               |
| 2046120              | Czech Language for Beginners II.  | 7                       | 2             |
|                      | nmon European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding  | and use of basic e      |               |
|                      | of general scientific terminology (professional language).  | ,                       |               |
| 2046125              | Czech Lower Intermediate  | Z                       | 2             |
| Aim: Understandin    | g 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.   |                         |               |
| 2046126              | Czech Lower Intermediate  | Z                       | 2             |
| Aim: Understandin    | g 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     |
| 2046127              | familiar topics. Reading and comprehension of simple texts. Improvement of professional language.   | Z                       | 2             |
|                      | Czech - Upper Intermediate andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability  |                         |               |
| Oridorstariding ste  | events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  | to describe experie     | crices and    |
| 2046128              | Czech - Upper Intermediate  | Z                       | 2             |
|                      | nmon European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional Cz  | ech and common p        |               |
| terminology. Com     | prehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on interm  | ediate level. Broad     | ening the     |
|                      | knowledge technical language.   |                         |               |
| 2046135              | Russian - Beginners   | Z                       | 2             |
|                      | abulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p  | rofessional languaç     |               |
| 2046136              | Russian - Beginners   | Z                       | 2             |
| Mapped to the leve   | el of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understanding  | and use of basic ex     | xpressions    |
| 2046137              | of general scientific terminology (professional language)  Russian - Lower Intermediate Course  | Z                       | 2             |
|                      | russian - Lower intermediate Course  In the course course course course course course in the course |                         |               |
| Oridorstanding cica  | topics. Reading and comprehension of simple texts. Improvement of professional language.  | , iii a siiripie way ac | Jour lamiliai |
| 2046138              | Russian - Lower Intermediate Course   | Z                       | 2             |
| Mapped to the leve   | of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a studer   | nt meets at school      | or in his/her |
| free time ar         | nd speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of p  | orofessional langua     | ige.          |
| 2046139              | Russian - Upper Intermediate  | Z                       | 2             |
| Understanding sta    | andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability   | to describe experie     | ences and     |
| 00.404.40            | events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  |                         |               |
| 2046140              | Russian - Upper Intermediate  | Z                       | 2             |
|                      | el of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student me<br>ng about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understandi  |                         | - 1           |
| 2046141              | Russian - Advanced  | Z                       | 2             |
|                      | of spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participatio   |                         |               |
| •                    | Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a   |                         |               |
| 2046142              | Russian - Advanced  | Z                       | 2             |
| Mapped to the le     | evel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to   | pics familiar to the    | student.      |
| Communication with   | h native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and u  | nderstanding texts      | concerning    |
|                      | currant issues and popular scientific and technical articles.   |                         |               |
| 2046155              | English Conversation  | Z                       | 2             |
| 0040450              | Improving communicative skills in speaking on general topics and general technical topics.  | 7                       |               |
| 2046156              | English Conversation Improving communicative skills in speaking on general topics and general technical topics.   | Z                       | 2             |
| 2046161              | Presentations in English  | Z                       | 2             |
| 2040101              | Preparing students to present in English on technical topics, with a possible co-operation with specialized departments.  |                         | 2             |
| 2046162              | Presentations in German   | Z                       | 2             |
| 2040102              | Preparation for presenting technical topics in German, possibly in cooperation with specialized departments.  |                         | 2             |
| 2046163              | Presentations in French language  | Z                       | 2             |
| 2010100              | Preparation for presenting technical topics in French, 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.   | , І                     |               |
| 2046165              | Presentations in Spanish  | Z                       | 2             |
|                      | Preparation for presenting technical topics in Spanish, possibly in cooperation 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 department   |                         |               |
| 2112091              | Project   | KZ                      | 2             |
| 2113991              | Bachelor Thesis   | Z                       | 4             |
| 2121023              | Thermodynamics  | Z,ZK                    | 5             |
|                      | th a basic engineering approach to classical thermodynamics, heat transfer and compressible flow through nozzles and diffusers. Basic compressible flow through nozzles and diffusers.  |                         | -             |
|                      | y are applied mostly to systems behaving as ideal gases or typical vapours. Basic notions associated with ideal mixtures are studied with a   |                         |               |

problems and experimental technique.

| 2121500                               | Fluid Dynamics   | Z,ZK                  | 5            |
|---------------------------------------|--|-----------------------|--------------|
|                                       | e in fluid dynamics deals with fundamental laws of hydrostatics and hydrodynamics and their application on the basic problems, as 1E   | ,                     |              |
| pressure losses                       | , simplified solution of unsteady flow. Basic information on more complicated problems (laminar and turbulent flow, boundary layer the introduced as well.   | eory, flow seppara    | trion) are   |
| 2122091                               | Department Project   | KZ                    | 2            |
|                                       | he content of the subject is given by the topic of bachelor's work after consultion with supervisor of bachelor work or the tutor of the   |                       | _            |
| 2123991                               | Bachelor Thesis  | Z                     | 4            |
| 212A023                               | Thermodynamics A   | ZK                    | 2            |
|                                       | th a basic engineering approach to classical thermodynamics, heat transfer and compressible flow through nozzles and diffusers. Bas  |                       | •            |
|                                       | y are applied mostly to systems behaving as ideal gases or typical vapours. Basic notions associated with ideal mixtures are studied with a  |                       |              |
| Heat transfer cov                     | ers fundamentals of conduction, convection and radiation. Heat exchangers are treated as an engineering application. Exercises and problems and experimental technique   | labs are devoted t    | o practical  |
| 212A500                               | Fluid Dynamics A   | ZK                    | 3            |
|                                       | e in fluid dynamics deals with fundamental laws of hydrostatics and hydrodynamics and their application on the basic problems, as 1  |                       | _            |
|                                       | , simplified solution of unsteady flow. Basic information on more complicated problems (laminar and turbulent flow, boundary layer the   |                       |              |
|                                       | introduced as well.  |                       |              |
| 2131002                               | Engineering Design II  | Z,ZK                  | 4            |
| •                                     | PS (Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface  | . •                   |              |
|                                       | ps, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice the  |                       |              |
| 2131005                               | History of Technology human knowledge in the domain of science and technology in the retrospective of the developement of our civilization. Emphasis is  | ZK                    | anches of    |
| · · · · · · · · · · · · · · · · · · · | special attention to the contribution of mining, iron metallurgy, power engineering, transportation and of the machine industry in the r   |                       |              |
| 2131026                               | Machine Elements and Mechanisms II   | ZK                    | 3            |
|                                       | design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, p  |                       |              |
|                                       | and fittings.  |                       |              |
| 2131512                               | Machine Elements and Mechanisms I.   | Z,ZK                  | 6            |
| · -                                   | lements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, ke  |                       |              |
|                                       | on, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded  | -                     |              |
| pressed, splined ar                   | nd key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple assen seminar work.   | ibly units is also in | aispensable  |
| 2132001                               | Engineering Design I.  | KZ                    | 2            |
| 2102001                               | Basic of technical representation, dimensioning and tolerancing  | I\Z                   | _            |
| 2132091                               | Branch Project   | KZ                    | 2            |
| 2133013                               | Engineering Design III.  | Z                     | 2            |
|                                       | Design of assembly unit (draft drawing, detail drawing, assembly drawing, technical report)  | _                     | _            |
| 2133014                               | Engineering Design IV.   | Z                     | 2            |
| 2133025                               | Design   | Z                     | 4            |
|                                       | , design calculations and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft coupli  | ngs and clutches.     |              |
| 2133991                               | Bachelor Thesis  | Z                     | 4            |
| 2141504                               | Electric Circuits and Electronics  | Z,ZK                  | 4            |
|                                       | neory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of electronics. Principles and trained parameters of basic complexity of a parameter of basic complexity of a parameter of basic complexity of a parameter of basic complexity. |                       |              |
| introduction into                     | electronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilizer amplifier). Analogue and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, micropro-                                       |                       | Derational   |
| 2141505                               | Electrical machines and drives   | Z,ZK                  | 4            |
|                                       | postrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transf  | ,                     | l .          |
| 3-phase transform                     | mer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-  | torque characteris    | tic, speed   |
| control. Synchrono                    | us machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque character   | istic. Low-voltage i  | instruments. |
|                                       | Low-voltage distribution system.   |                       | _            |
| 2144062                               | Technical Indonesian - Course II.  | Z,ZK                  | 3            |
| 24.46060                              | Basic of Indonesian Language for Student Exchange Program to Indonesia   | Z                     | 2            |
| 2146060                               | Indonesian Language Course for Exchange Basic of Indonesian Language for Student Exchange Program to Indonesia   | 2                     | 2            |
| 2146061                               | Technical Indonesian - Course I.   | Z                     | 2            |
| 2140001                               | Second part of Indonesian Language for Student Exchange Program to Indonesia   | _                     | _            |
| 2152091                               | Deparmental Project  | KZ                    | 2            |
| 2153005                               | Fundamentals of Energy Conversions   | Z                     | 1            |
| 2153991                               | Bachelor Thesis  | Z                     | 4            |
| 2162091                               | Project  | KZ                    | 2            |
|                                       | Student will be informed about basics of environmental engineering and creation of thermal comfort.  |                       | _            |
| 2163991                               | Bachelor Thesis  | Z                     | 4            |
| Bachelor Thesis is                    | final individual work. This work checks ability of logical independent technical thinking and treatment with technical materials. There is   | s applied acquired    | knowledge    |
|                                       | from previous study periods.   |                       | T            |
| 2181026                               | Momentum, Mass and Heat Transfer   | Z,ZK                  | 5            |
|                                       | transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical   |                       |              |
| ume aisuibalions in                   | continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and there systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.   | mai rauialion. Müli   | ncomponent   |
| 2182019                               | Chemistry  | KZ                    | 3            |
|                                       | y from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties   |                       | _            |
|                                       | n, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biocher   |                       | -            |
|                                       | oriented upon the material properties measurement.   |                       |              |
|                                       |  |                       |              |

| 2182091  | Project Absolvent se seznámí se základy oboru Procesní technika.   | KZ   | 2  |
|--|--|--|--|
| 2183991  | Bachelor Thesis  | Z  | 4  |
| 2222091  | Project  | KZ   | 2  |
| 2223991  | Bachelor Thesis  | Z  | 4  |
| 2311101  | Mechanics I.   | Z,ZK   | 4  |
|  | with the basic concepts of statics. There are described the methods of solution of equilibrium of particles and rigid bodies and their system.  There are introduced the methods of description of position and motion of particles and rigid bodies.  |  |  |
| 2311102  | Mechanics II.  | Z,ZK   | 4  |
|  | t and of rigid bodies. Transformation matrix. Kinematics of concurrent movements. Motion: translation, rotation, general planar motion, spl<br>tion. Composition of mechanisms. Basic planar mechanisms. Analytical methods in kinematics of mechanisms - Trigonometric and vector   | r method. Graph  |  |
| 2244407  | in kinematics. Basic theory of gearing. Transmition mechanisms with geers. Strutting and seezing in mechanisms. Cable mechanism  |  | 7  |
| 2311107  | Mechanics III.  Is with the basic concepts of dynamics. Methods of solving the dynamics of mass particle and body motion and their systems are descr   | Z,ZK   | 7  |
| iviecnanics in deal  | and solving vibrations of systems.   | ibea. Metrious i   | or describing  |
| 2312091  | Project  | KZ   | 2  |
| 2012001  | Individual asignment   |  | _  |
| 2313991  | Bachelor Thesis  | Z  | 4  |
| 224 4 4 0 4  | Individual assignment  | 71/  | 1 2  |
| 231A101  | Mechanics I.A  | ZK   | 2  |
| 231A102  | Mechanics II.A   | ZK   | 2  |
| 231A107  | Mechanics III.A  | ZK   | 4  |
| 2321039  | Materials Science II.  | Z,ZK   | 4  |
| -undamentals of n  | netallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and the technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of material  |  | ıı processing  |
| 2322029  | Materials Science I.   | s.<br>KZ   | 3  |
|  | ent state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, deform  |  | _  |
|  | erials, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, iron  | -  |  |
| 2322091  | Project  | KZ   | 2  |
|  | preliminary submission of a bachelor thesis the students, under supervision of their supervisors, prepare a review summarizing and evi   |  | 1  |
|  | emphasis on experimental technologies which can be applied in their bachelor theses. They can also mention a planned experiment or knowledge or results.   | _  |  |
| 2323991  | Bachelor thesis  | Z  | 4  |
|  | Development of the bachelor thesis on an assignment under the supervision.   | _  |  |
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| 2373991   | Bachelor Thesis   | Z                  | 4             |  |  |
|---|---|--------------------|---------------|--|--|
| Each student will solve his individual theme under guiding of his individual supervising department specialist. Result is his/her bachelor thesis.                                      |   |                    |               |  |  |
| 2381054   | Management and Economics of the Enterprise  | Z,ZK               | 4             |  |  |
| The course is design  | gned to give students the understanding of economic principles. The economical part of the course is consisted from: explanation of r         | elationship betwe  | en costs and  |  |  |
| revenues, expens  | es and income, concept of investment and calculations per product, presentation how to assemble a basic operating budget and expl             | anation of the bas | sic structure |  |  |
| of the financial sta  | tements. The management introduces the basic managerial functions and their contents, the uses of network analysis in project man             | agement, with the  | application   |  |  |
|   | of multi-criteria decision, the basics of marketing and strategic management.   |                    |               |  |  |
| 2382091   | Specialization Project  | KZ                 | 2             |  |  |
| 2383001   | Fundamentals of Law   | Z                  | 2             |  |  |
| 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 s   | ources of law and system of law (branch of law), using tutorials, lectures, specialised literature and significant legal regulations. It is n | ecessary for stude | ents to know  |  |  |
| our legal institution   | ons, 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 k   | now some practical habits and processes while putting the law on, especially in domain of contracts and other important legal relation        | ships and to make  | e them ready  |  |  |
|   | to prepare professional presentations and to understand basic structures between law and engineering  |                    |               |  |  |
| 2383008   | Managerial Psychology   | Z                  | 2             |  |  |
| 2383009   | Communication and Dealing with People   | Z                  | 2             |  |  |
| Human communi   | cation represents an irreplaceable phenomenon in human activity, as it is present in practically all of his activities. The same applies (    | with specific modi | fications) to |  |  |
|   | the activities of managers. So you can't not communicate - you can only communicate badly, well and excellently.                              |                    |               |  |  |
| 2383019   | Philosophical Issues Of Individual and Science  | Z                  | 2             |  |  |
| 2383991   | Bachelor Thesis   | Z                  | 4             |  |  |
|   | . Work on specialized tasks related to the focus of a thesis.   | •                  | •             |  |  |

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