Study plan

Name of study plan: 06 40 45 48 DSTR EPT 2012 K základ

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch: Program of study: Welcome page Type of study: unknown combined

Required credits: 114

Elective courses credits: 124 Sum of credits in the plan: 238

Note on the plan: SP12DSTR-K MUSTR # SP12DSTR-TZP-K # SP12BSTR-TZP-K # první pokus

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 37

The role of the block: P

Code of the group: 12BS*7P-EPT

Name of the group: 12 2012 BSTR 7.sem povinné EPT

Requirement credits in the group: In this group you have to gain 20 credits

Requirement courses in the group: In this group you have to complete 4 courses

Credits in the group: 20 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2151165	Hydraulic and Pneumatic Machines	Z,ZK	5	2P+2C	*	Р
2151090	Industry power and heating plant	Z,ZK	5	2P+2C	*	Р
2151554	Thermal Turbines	Z,ZK	5	2P+2C	*	Р
2151559	Heat Exchangers and Boilers	Z,ZK	5	2P+2C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12BS*7P-EPT Name=12 2012 BSTR 7.sem povinné EPT

2151165	Hydraulic and Pneumatic Machines	Z,ZK	5				
Classificiation and p	Classificiation and principles of operation of hydraulic machines. Criterions of hydrodynamical similarity. Hydraulic systems. Differend types of pumps, construction, capacity control						
and operation in vari	ous conditions. Theory of compression processes. Constructions, calculation, capacity control of compressors, operation with v	arious gases. Refi	rigerating				
compressors. Acces	sories of a compressor stations and plants. Economical and ecological problems of a compressed air production and distribution	n.					
2151090	Industry power and heating plant	Z,ZK	5				
2151554	Thermal Turbines	Z,ZK	5				
2151559	Heat Exchangers and Boilers	Z,ZK	5				

Code of the group: 12BS*8P-EPT

Name of the group: 15 2012 BSTR 8.sem povinné EPT

Requirement credits in the group: In this group you have to gain 17 credits

Requirement courses in the group: In this group you have to complete 4 courses

Credits in the group: 17 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
2151118	Distributed Energy	Z,ZK	5	2P+2C	*	Р
2151117	Design of Power Facilities	Z,ZK	5	2P+2C	*	Р
2153006	Technology of Air Protection in Power Engineering	Z	2	0P+2C	*	Р
2151158	Principles of Refrigerating Technology and Heat Pumps	Z,ZK	5	2P+2C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12BS*8P-EPT Name=15 2012 BSTR 8.sem povinné EPT

2151118	Distributed Energy	Z,ZK	5
2151117	Design of Power Facilities	Z,ZK	5
2153006	Technology of Air Protection in Power Engineering	Z	2
2151158	Principles of Refrigerating Technology and Heat Pumps	Z,ZK	5

Code of the group: 12DSK1P-KMEN

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

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

Credits in the group: 0

12B**1P-KMEN# 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
2182019	Chemistry Radek Šulc, Martin Dostál, Vojt ch B Iohlav, Jan Sko ilas, Adam Krupica, Filip Randák Radek Šulc Radek Šulc (Gar.)	KZ	3	2P+1C	1	Р
2011021	Constructive Geometry	Z,ZK	6	3P+2C	*	Р
2011056	Mathematics I Radka Keslerová, Marta Hlavová, Ji í Holman, Gejza Dohnal, Marta ertíková, Vladimír Hric, Nikola Pajerová, Petr Louda, Lukáš Hájek, Radka Keslerová Gejza Dohnal (Gar.)	Z,ZK	8	4P+4C	*	Р
2372041	Computer Support for Study Vladimír Hlavá	KZ	3	1P+1C	*	Р
K333038	Fundamentals of Technology I.	Z	3	8B	*	Р

Characteristics of the courses of this group of Study Plan: Code=12DSK1P-KMEN Name=00 2012 D kmenové 1. semestr STR kombinované

2182019	Chemistry	KZ	3			
General chemistry fron	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, che	mical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and bioch	emistry. Laborato	ry practice is			
oriented upon the mate	rial properties measurement.					
2011021	Constructive Geometry	Z,ZK	6			
The subject is focused	on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.					
2011056	Mathematics I	Z,ZK	8			
In the course, greater e	In the course, greater emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connections between concepts. Students					
will also get to know the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: eigennumbers and eigenvectors						
of a matrix, Taylor poly	nomial, integral as a limit function, integration of some special functions.					
2372041	Computer Support for Study	K7	3			

The course introduces students into creating technical and professional documents on computers or Web and into realizing technical computations with the use of computers. Students

gain practical skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical-based WWW page. Fundamentals of Technology I.

Production processes in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technical metals. Production of pig iron and steel. Casting: modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming technology. Hot and cold forging. Free and drop forging. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of welding. Fusion welding: Flame welding and arc welding with coated electrodes. Thermal cutting.

Code of the group: 12DSK2P-KMEN

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

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

Credits in the group: 0

Note on the group:

12B**2P-KMEN #

1000 011 1110 910 1111							
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	
2011062	Matematika II. Radka Keslerová	Z,ZK	8	4P+4C	*	Р	
2322029	Materials Science I. Jana Sobotová	KZ	3	2P+1L	2	Р	
2012037	Computer Graphics	KZ	3	1P+1C	*	Р	
2131002	Engineering Design II	Z,ZK	4	2P+3C	2	Р	

Characteristics of the courses of this group of Study Plan: Code=12DSK2P-KMEN Name=00 2012 D kmenové 2. semestr STR kombinované

2021041 Physics I.

Kinematics and dynamics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic properties of bodies. Oscillations, waves. Fluid mechanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Conductors, semiconductors, insulators. Magnetic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect measurements, regression, measurements of 11 various experiments related to the lectures.

2011062 Matematika II.

Open and closed set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differential operators div (divergence)

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.

2322029 | Materials Science I. | KZ | 3 History and present state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, deformation, recrystallization and

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

 2012037
 Computer Graphics
 KZ
 3

 2131002
 Engineering Design II
 Z,ZK
 4

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.

Code of the group: 12DSK3P-KMEN

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

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

Credits in the group: 0 Note on the group:

12B**3P-KMEN #

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2021025	Physics II.	Z,ZK	4	1P+2L	3	Р
2011009	Mathematics III Stanislav Kra mar	Z,ZK	5	2P+2C	*	Р
2311101	Mechanics I. Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Zbyn k Šika, Zbyn k Šika Zbyn k Šika (Gar.)	Z,ZK	4	2P+2C	*	Р
2321039	Materials Science II. Ji í Cejp, Jakub Horník, Jana Sobotová, Elena ižmárová, Eliška Gal íková, Pavlína Hájková, Jakub Horváth, Stanislav Krum, Vladimír Mára, Jana Sobotová Jana Sobotová (Gar.)	Z,ZK	4	2P+2L	*	Р
2133013	Engineering Design III. Št pán Tichý, Jan Hoidekr, Jan Kanaval, František Lopot, David Skalický, Roman Uhlí Jan Kanaval Jan Kanaval (Gar.)	Z	2	0P+2C	Z	Р
2012035	Algorithmization and Programming Fundamentals Petr Svá ek	KZ	4	1P+2C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12DSK3P-KMEN Name=00 2012 D kmenové 3. semestr STR kombinované

2021025 | Physics II.
Faraday's law of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic waves. Interaction of radiation with matter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and periodic system of elements.

of radiation with matter. Photoelectric effect, wave-particle mature of matter, quantum-mechanical description of particle's motion. Hydrogen atom and periodic system of elements.

Spectra, x-rays, ; laser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiments related to the lectures.

2011009 | Mathematics III

An introductory course in ordinary differential equation and infinite series.

2311101 Mechanics I.

Mechanics I deals with the basic concepts of statics. There are described the methods of solution of equilibrium of particles and rigid bodies and their systems with and without friction

Mechanics I deals with the basic concepts of statics. There are described the methods of solution of equilibrium of particles and rigid bodies and their systems with and without friction.

There are introduced the methods of description of position and motion of particles and rigid bodies.

2321039 | Materials Science II. | Z,ZK | 4
Fundamentals of metallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and thermo-mechanical processing,

Fundamentals of metallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and thermo-mechanical processing technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materials.

2133013 Engineering Design III.

2133013 Engineering Design III. Z 2
Design of assembly unit (draft drawing, detail drawing, assembly drawing, technical report)

2012035 Algorithmization and Programming Fundamentals KZ 4

Programming in MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Matrices, vectors and operations. Writting M-script. Input and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Systems of linear equations. Scripts and functions. Structure of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. Structures. Algorithmization of simple programs: minimum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of systems of linear equations.

Code of the group: 12DSK4P-KMEN

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

Requirement credits in the group:

Requirement courses in the group:

Credits in the group: 0

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

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2311102	Mechanics II. Václav Bauma	Z,ZK	4	2P+2C	*	Р
2011049	Numerical Mathematics Petr Svá ek	Z,ZK	4	2P+2C	4	Р
2133014	Engineering Design IV. František Lopot	Z	2	0P+2C	L	Р
K331068	Technology I	Z,ZK	5	16B	*	Р

Characteristics of the courses of this group of Study Plan: Code=12DSK4P-KMEN Name=00 2012 D kmenové 4. semestr STR kombinované							
2311102	Mechanics II.	Z,ZK	4				
Kinematics of point and	of rigid bodies. Transformation matrix. Kinematics of concurrent movements. Motion: translation, rotation, general planar motion	n, spherical motio	n, screw motion,				
general spatial motion.	$Composition \ of \ mechanisms. \ Basic \ planar \ mechanisms. \ Analytical \ methods \ in \ kinematics \ of \ mechanisms - Trigonometric \ and \ respectively. \ Trigonometric \ and \ respectively. \ Trigonometric \ and \ respectively.$	vector method. Gr	aphical methods				
in kinematics. Basic the	ory of gearing. Transmition mechanisms with geers. Strutting and seezing in mechanisms. Cable mechanisms.						
2011049	Numerical Mathematics	Z,ZK	4				
Numerical solution of sy	stems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Nume	rical solution of ord	dinary differential				
equations, initial and bo	oundary value problems. Numerical solution of basic linear partial differential equations by finite difference method.						
2133014	Engineering Design IV.	Z	2				
K331068	Technology I	Z,ZK	5				
Foundry properties of metals, Treatment, Pouring, Casting solidification, Moulding and core making, Thermal treatment, Plastic deformation, Division of forming processes, Semi-products,							

Code of the group: 12DSK5P-KMEN

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

heating-up. Cutting. Cold and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. Brasing. Surface treatment.

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

Technology II.

Fundamentals of Energy Conversions

Credits in the group: 0

Note on the group:

K341014

2153005

12B*K5P-KMEN #

Z,ZK

5

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2131512	Machine Elements and Mechanisms I. František Lopot	Z,ZK	6	3P+2C	*	Р
2141504	Electric Circuits and Electronics Stanislava Papežová, Jan Chyský, Jaroslav Novák, Lukáš Novák Zuzana Sedlecká Jan Chyský (Gar.)	Z,ZK	4	2P+08C+1.4L	*	Р
2372083	Measurement in Engineering Martin Novák, Vladimír Hlavá Martin Novák (Gar.)	KZ	3	1P+0C+2L	*	Р
K341014	Technology II.	Z,ZK	5	8KP+8KC	*	Р
2153005	Fundamentals of Energy Conversions	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=12DSK5P-KMEN Name=00 2012 D kmenové 5, semestr STR kombinované

Characteriotics of the courses of this group of clady Flam. Godo-1250No. ThinElt Hanne-00 2012 B kindhoto 0.00mloca OTA Rembiliovance								
2131512	Machine Elements and Mechanisms I.	Z,ZK	6					
Joints and joining eleme	Joints and joining elements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, keys). Mechanical transmissions							
(belt, chain, friction, gea	r drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloade	ed connecting bolt	s, clamped,					
pressed, splined and ke	y joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple as	sembly units is als	so indispensable					
seminar work.								
2141504	Electric Circuits and Electronics	Z,ZK	4					
Introduction into theory	of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of	of energy. El. Pow	er and Energy.					
Introduction into electro	nics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilize	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 principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and verification of measurement								
instruments.								

2383001 Fundamentals of Law

Basic orientation in legal system is a necessary part of professional equipment of each expert with university degree. The aim of this course is to provide a view into the Czech Legal Order, particular sources of law and system of law (branch of law), using tutorials, lectures, specialised literature and significant legal regulations. It is necessary for students to know our legal institutions, that will be regularly in touch with, especially during their professional career and to learn how to work with the collection of laws. At the same time the course leads students to know some practical habits and processes while putting the law on, especially in domain of contracts and other important legal relationships and to make them ready to prepare professional presentations and to understand basic structures between law and engineering

Code of the group: 12DSK6P-KMEN

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

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

Credits in the group: 0

Note on the group	12B**6P-KMEN #						
Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role	
2371047	Automatic Control	Z,ZK	5	3P+15C+05L	*	Р	
2131026	Machine Elements and Mechanisms II František Lopot	ZK	3	3P+0C	*	Р	
2141505	Electrical machines and drives Jaroslav Novák	Z,ZK	4	2P+06C+14L	*	Р	
2133025	Design František Lopot	Z	4	0P+4C	*	Р	
2381054	Management and Economics of the Enterprise	Z,ZK	4	2P+2C	*	Р	
2181026	Momentum, Mass and Heat Transfer	Z,ZK	5	3P+1C	*	Р	

Characteristics of the courses of this group of Study Plan: Code=12DSK6P-KMEN Name=00 2012 D kmenové 6. semestr STR kombinované

23/104/	Automatic Control	∠,∠r\	3	Ĺ			
Automatic controllers are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automatic control theory and practice							
like transfer functions, open versus closed loop control, design of controllers and frequency based analysis of control systems. The course also concentrates on logic control and control							
via programmable logic controllers. Some seminaries are arranged in laboratories where practical skills and control engineering methods are trained. Students begin to work with							
MATLAB software as a	common platform of control engineers.			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

ZK

3

and fittings.

2141505 Electrical machines and drives

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	Z	4
Design, design calculat	ions 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	7 7K	4

The subject is intended to teach the students of the Faculty of Mechanical Engineering the basic economic starting points necessary for technical reasoning and to help them understand the basic relationships between economic quantities costs - revenues, expenses - incomes and other basic economic terms. The goal is for the audience to be able to communicate with economists in organizations, every product or service is valued at a selling price and therefore it is necessary to understand the simple costing of products and services. Every technician will encounter reports and should understand the basic structure of financial statements. As a future manager, he will compile and approve the operating budget. In the field of management, they will learn basic managerial functions and their content. Furthermore, they will learn how to use network analysis in project management. For decision-making purposes, they will learn the applications of multi-criteria decision-making. The basics of marketing and strategic management will be introduced.

Momentum, Mass and Heat Transfer Fundamentals of transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical energy equation. Residence

time distributions in continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and thermal radiation. Multicomponent systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 45

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

	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2383009	Communication and Dealing with People Jan Horejc Jan Horejc (Gar.)	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

2383009 | Communication and Dealing with People | Z | 2 | Human communication represents an irreplaceable phenomenon in human activity, as it is present in practically all of his activities. The same applies (with specific modifications) to

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

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

Name of the group: 08 2012 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

	oblacti cabonio terrimiologio					
Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2041061	English-Bachelor Exam Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová, Michele Le Blanc Ilona Šimice (Gar.)	Z,ZK	2	0P+2C	*	PV
2041063	French - Bachelor Exam /FME Dušana Jirovská Eliška Vítková Dušana Jirovská (Gar.)	Z,ZK	2	0P+2C	*	PV
2041062	German - Bachelor Exam / FME Jaroslava Kommová, Eliška Vítková, Petr Laurich Jaroslava Kommová Jaroslava Kommová (Gar.)	Z,ZK	2	0P+2C	*	PV
2041065	Russian - Bachelor Exam / FME Hana Volejníková, Dušana Jirovská Eliška Vítková Dušana Jirovská (Gar.)	Z,ZK	2	0P+2C	*	PV
2041064	Spanish - Bachelor Exam / FME Jaime Andrés Villagómez Eliška Vítková Jaime Andrés Villagómez (Gar.)	Z,ZK	2	0P+2C	*	PV

Characteristics of the courses of this group of Study Plan: Code=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 Com	mon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater dif	ficulties, to take part	t in discussions,
to write a summary	a report and an essay, to read technical texts, to master grammar at advanced level.		
2041063	French - Bachelor Exam /FME	Z,ZK	2
Mapped to the Com	mon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater dif	ficulties, to take part	t in discussions,
to write a summary	a report and an essay, to read technical texts, to master grammar at advanced level.		
2041062	German - Bachelor Exam / FME	Z,ZK	2
Mapped to the Com	mon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater dif	ficulties, to take part	t in discussions,
to write a summary	a report and an essay, to read technical texts, to master grammar at advanced level.		
2041065	Russian - Bachelor Exam / FME	Z,ZK	2
Mapped to the Com	mon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater dif	ficulties, to take part	t in discussions,
to write a summary	a report and an essay, to read technical texts, to master grammar at advanced level.		
2041064	Spanish - Bachelor Exam / FME	Z,ZK	2
Mapped to the Com	mon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater dif	ficulties, to take part	t in discussions,
to write a summary	a report and an essay to read technical texts, to master grammar at advanced level		

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

Name of the group: 10 2012 BSTR 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:

Student si vybere předmět příslušný oboru, který studuje

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
2372091	Project	KZ	2	0P+2C	*	PV
2362091	Project	KZ	2	0P+2C	*	PV
2152091	Deparmental Project	KZ	2	0P+2C	*	PV
2182091	Project	KZ	2	0P+2C	*	PV

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

2372091	Project	KZ	2			
An individual project from the branch of specialisation, which student will study on his/her magister level						
2362091	Project	KZ	2			
2152091	Deparmental Project	KZ	2			
2182091	Project	KZ	2			
Absolvent se seznámí se základy oboru Procesní technika.						

Code of the group: 12BS*6Q-PP

Name of the group: 11 2012 BSTR 6. sem prezentace projekt

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:

2363091 nesepsán Student si vybere předmět příslušný oboru, který studuje

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
2153091	Presentation of Project	Z	4	4B	*	PV
2363091	Project Presentation	Z	4	4B		PV
2373091	Project presentation	Z	4	4B	*	PV
2183091	Project Presentation	Z	4	0P+4C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12BS*6Q-PP Name=11 2012 BSTR 6. sem prezentace projekt

2153091	Presentation of Project	Z	4				
2363091	Project Presentation	Z	4				
2373091	Project presentation	Z	4				
Diploma thesis or bach	Diploma thesis or bachelor work presentation. Student should study the presentation software possibilities and proposition of the department. Student should prepare the presentation						
of actual version of his	diploma or bachelor work and present it in the face of the other student. The presentation will continue with discussion. Consi	equently, the work	should be				
presented as a pdf file	presented as a pdf file on a temporal web page.						
2183091	Project Presentation	Z	4				
Preparation and presentation of a given project theme.							

Code of the group: 12BS*7Q-EPT-P1

Name of the group: 13 2012 BSTR 7.sem 1povvol EPT-P1

Requirement credits in the group: In this group you have to gain 5 credits

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

Credits in the group: 5

Note on the group: Kód předmětu Projekt I. se zapisuje podle ústavu: 2153707 Ústav energetiky a 2183707

Ústav procesní a zpracovatelské techniky

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
2183707	Project I.	Z	5	0P+7C	*	PV
2153707	Project I.	Z	5	0P+7C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12BS*7Q-EPT-P1 Name=13 2012 BSTR 7.sem 1povvol EPT-P1

2183707	Project I.	Z	5
Project, dimensioning a	nd designing solution of basic elements for process technology.		
2153707	Project I.	Z	5

Code of the group: 12BS*7Q-EPT-ZAM

Name of the group: 14 2012 BSTR 7.sem 1povvol EPT-zam

Requirement credits in the group: In this group you have to gain 5 credits

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

Credits in the group: 5 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
2181502	Hydromechanical Equipment	Z,ZK	5	2P+2C	*	PV
2151002	Nuclear Power Principles	Z,ZK	5	2P+2C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12BS*7Q-EPT-ZAM Name=14 2012 BSTR 7.sem 1povvol EPT-zam

2181502 Hydromechanical Equipment Z,ZK 5
Design, principles and basic calculations of following equipment: pipes and pipe networks, packed and bubble columns, filters, settlers, centrifuges and cyclones, fluidized beds, mixing equipment, silos and conveyors, crushers and mills, granulators, extruders, injection and blow moulding machines, rolls and calenders.

2151002 Nuclear Power Principles
Physical fundamentals of nuclear energy. Development and heat removal from core. Basic materials for nuclear reactors. Basic types of nuclear reactors. Review of advanced types

of nuclear reactors. Fuel cycle. Reactor radiation, detection and quantification, determination of radiation doses. Problems of nuclear safety and technical provisions.

Code of the group: 12BS*8Q-EPT-BP

Name of the group: 16 2012 BSTR 8.sem 1povvol EPT-BP

Requirement credits in the group: In this group you have to gain 5 credits

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

Credits in the group: 5

Note on the group: Kód předmětu Bakalářská práce se zapisuje podle ústavu: 2153985 Ústav energetiky

2183985 Ústav procesní a zpracovatelské techniky

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
2183985	Bachelor Thesis	Z	5	0P+6C	*	PV
2153985	Bachelor Thesis	Z	5	0P+6C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12BS*8Q-EPT-BP Name=16 2012 BSTR 8.sem 1povvol EPT-BP

2183985	Bachelor Thesis	Z	5			
Bachelor thesis is final individual work. This work checks ability of logical independent technical thinking and treatment with technical materials. There is applied acquired knowledge						
from previous study periods.						
2153985	Bachelor Thesis	Z	5			

Code of the group: 12BS*8R-EPT-ZAM

Name of the group: 17 2012 BSTR 8.sem 2povvol EPT-zam

Requirement credits in the group: In this group you have to gain 20 credits

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

Credits in the group: 20

Note on the group: Ze skupiny PV předmětů nutno d v a volit

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
2181507	Diffusion separation equipment Radek Šulc	Z,ZK	5	2P+2C	*	PV
2152028	Energy Audit and Legislation	KZ	5	2P+2C	*	PV
2151702	Renewable Energy Sources	Z,ZK	5	2P+2C	*	PV
2181508	Heat transfer equipments Martin Dostál	Z,ZK	5	2P+2C	*	PV

2101301	Diliusion separation equipment	,_r) 3				
Classis from Equipment for diffusion separation processes are giving a basic knowledge of processes and equipments where gas or liquid mixture is been separated due to principals							
of physical-chemical e	of physical-chemical equilibriums or on the basis of mass transfer mechanisms. They are used for concentrating of products from dilute solutions or in turn for purification of diluted						
gasses or liquid solution	gasses or liquid solutions.						
2152028	Energy Audit and Legislation	KZ	5				
2151702	Renewable Energy Sources	Z,ZK	5				

2181508 Heat transfer equipments

Fundamentals of thermodynamics and conductive and convective heat transfer. Enthalpy balancing. Technical thermodynamics and basic thermodynamic cycles. Functional description, mechanical design, thermal and hydraulic design of a heat exchangers, evaporators and dryers.

Name of the block: Elective courses

Minimal number of credits of the block: 32

The role of the block: V

Code of the group: 12BS**V-ALFA

Name of the group: 02 2012 ALFA volitelné pro STR

Requirement credits in the group: In this group you have to gain 32 credits

Requirement courses in the group: In this group you have to complete 12 courses

Credits in the group: 32

2024041

Note on the group:

Předměty typu Alfa (A) nejsou u studijního programu B2341 Strojírenství povinné, avšak jsou

povinné u studijního programu B2342 Teoretický základ strojního inženýrství

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
202A041	Physics I.	ZK	3	0P+0L	*	V
202A025	Physics II.A	ZK	2	0P+0C	*	V
201A021	Constructive Geometry A	ZK	3	0P+0C	*	V
201A056	Mathematics I.A Radka Keslerová	ZK	4	0P+0C	*	V
201A062	Mathematics II.A Radka Keslerová	ZK	4	0P+0C	*	V
201A009	Mathematics III.A Stanislav Kra mar	ZK	2	0P+0C	*	V
201A049	Numerical Mathematics A Lud k Beneš	ZK	2	0P+0C	*	V

Characteristics of the courses of this group of Study Plan: Code=12BS**V-ALFA Name=02 2012 ALFA voliteIné pro STR

202/1041	i flysics i.	ZI\	1 3	ı				
Kinematics and dynamic	es of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic	properties of boo	lies. Oscillations,	l				
waves. Fluid mechanics	waves. Fluid mechanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Conductors, semiconductors,							
insulators. Magnetic field	d. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and inc	lirect measureme	nts, regression,	l				
measurements of 11 va	rious experiments related to the lectures.			l				

202A025	Physics II.A	ZK	2			
Faraday's law of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic waves. Interaction						
of radiation with matter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and periodic system of elements.						
Spectra, x-rays, :laser,	Band theory of solids, semiconductors, Nucleus, radioactivity, sources of nuclear energy, Laboratories - measurements of 6 e	xperiments relate	d to the lectures.			

201A021	Constructive Geometry A	ZK	3		
The subject is focused	The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.				
201A056	Mathematics I.A	ZK	4		
Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable					
201A062	Mathematics II.A	ZK	4		

Open and closed set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differential operators div (divergence) and curl (rotation), Function given implicitly, Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, Fubini theorem, Transformation of integrals to polar, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green's theorem. A potential vector field, independence of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector field through a surface. The

Gauss-Ostrogradskij theorem.						
201A009	Mathematics III.A	ZK	2			
201A049	Numerical Mathematics A	ZK	2			

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

Dhysics I

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, Lud k Beneš, Hynek ezní ek, Olga Majlingová Radka Keslerová Geiza Dohnal (Gar.)	Z	2	0P+2C	1	V

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

2026016	Physics - Seminar	Z	2		
The subject is mainly meant 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:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2046155	English Conversation Ilona Šimice, Michele Le Blanc Ilona Šimice Michele Le Blanc (Gar.)	Z	2	0P+2C	*	V
2046156	English Conversation Michele Le Blanc	Z	2	0P+2C	L	V
2046071	English - Lower Intermediate Veronika Kratochvílová	Z	2	0P+2C	L	V
2046070	English - Lower Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046074	English - Advanced Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová, Michaela Le Blanc Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046075	English - Advanced Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová, Michele Le Blanc Ilona Šimice Ilona Šimice (Gar.)	Z	2	0P+2C	L	V
2046072	English - Upper Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046073	English - Upper Intermediate Ilona Šimice Ilona Šimice Ilona Šimice (Gar.)	Z	2	0P+2C	L	V
2046068	English - Beginners Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046069	English - Beginners 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 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 Dušana Jirovská Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	L	V
2046091	French - Advanced Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	L	V

2046090	French - Advanced Michaela Schusová, Dušana Jirovská, Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046089	French - Upper Intermediate Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	L	V
2046088	French - Upper Intermediate 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 Dušana Jirovská Michaela Schusová Dušana Jirovská (Gar.)	Z	2	0P+2C	L	٧
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 Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	٧
2046079	German - Lower Intermediate Course Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	٧
2046083	German - Advanced Course Jaroslava Kommová, Eliška Vítková, Petr Laurich Jaroslava Kommová Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	٧
2046082	German - Advanced Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046081	German - Upper Intermediate Course Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046080	German - Upper Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046076	German - Beginners Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Petr Laurich (Gar.)	Z	2	0P+2C	Z	V
2046077	German - Beginners Jaroslava Kommová, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	٧
2046161	Presentations in English Michaela Schusová	Z	2	0P+2C	*	٧
2046166	Presentations in Czech Jaroslava Kommová	Z	2	0P+2C	*	V
2046162	Presentations in German Jaroslava Kommová, Eliška Vítková, Petr Laurich Jaroslava Kommová Jaroslava Kommová (Gar.)	Z	2	0P+2C	*	٧
2046164	Presentations in Russian Dušana Jirovská	Z	2	0P+2C	*	V
2046163	Presentations in French language Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	*	V
2046165	Presentations in Spanish Eliška Vítková	Z	2	0P+2C	*	V
2046137	Russian - Lower Intermediate Course Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	٧
2046138	Russian - Lower Intermediate Course Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046141	Russian - Advanced Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046142	Russian - Advanced Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046140	Russian - Upper Intermediate Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046139	Russian - Upper Intermediate Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046136	Russian - Beginners Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046135	Russian - Beginners Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046099	Spanish - Lower Intermediate Jaime Andrés Villagómez Eliška Vítková Jaime Andrés Villagómez (Gar.)	Z	2	0P+2C	L	V
2046098	Spanish - Lower Intermediate Michaela Schusová, Eliška Vítková, Jaime Andrés Villagómez Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	٧

2046006	Spanish - Beginners	Z	2	0P+2C	z	.,
2046096	Michaela Schusová, Eliška Vítková, Jaime Andrés Villagómez Eliška Vítková Eliška Vítková (Gar.)		2	UP+2C		V
2046097	Spanish - Beginners Jaime Andrés Villagómez Jaime Andrés Villagómez (Gar.)	Z	2	0P+2C	L	V
haracteristics of	the courses of this group of Study Plan: Code=12B**1V-DOP ZJK	Name-06 20)12 dono	ru ené z	ákladní i:	azvkové
urzy a prezentac		Name-00 Z	712 dopo	iu ene z	akiaaiii je	azykove
2046155	English Conversation				Z	2
mproving communication	ve skills in speaking on general topics and general technical topics.			ı	'	
2046156	English Conversation				Z	2
	ve skills in speaking on general topics and general technical topics.					
046071	English - Lower Intermediate				Z	2
* *	n European Framework of Reference Level A2 Aim: Understanding clearly spoken language nd speaking about them. Writing in a simple way about familiar topics. reading and compref					
2046070	English - Lower Intermediate	icrision or simple	toxio. Impri	- I	7	2
	arly what is spoken about everyday situations which a student meets at school or in his/her	free time and sp	eaking abou	ıt them. Writ	ing in a simp	_
amiliar topics. Reading	and comprehension of simple texts. Improvement of professional language. A1 - A2.					
2046074	English - Advanced				Z	2
•	n of spoken English as well as lectures given in English without great difficulties and active					
•	ummary, a report, an essay. reading and comprehension of popular-scientific and scientific advanced level. B1 - B2.	articles or texts t	rom student	s field of sti	idies withou	it difficulties.
2046075	English - Advanced			1	Z	2
	n European Framework of Reference Level B1 - B2. The aim: comprehension of spoken En	glish as well as le	ectures give	ا n in English ا	_	
nd active participation	in a discussion. Written and oral skills on advanced level. Ability to write a summary, a repo	ort, an essay. read	ding and cor	mprehension	of popular-	scientific and
cientific articles or text	s from student's field of studies without difficulties. Grammar structures on advanced level.					
046072	English - Upper Intermediate				Z	2
	guage skills taking into consideration professional English and common professional termin y life - at school, at work, during free time, on intermediate level. Broadening grammar knov		nsion of star	ndard Englis	h speech an	d conversatio
046073	English - Upper Intermediate	wedge. Az - D1.		<u> </u>	Z	2
	n European Framework of Reference Level B1. The aim is to extend language skills taking i	nto consideration	professiona	। al English ar	_	
	nsion of standard English speech and conversation about topics of everyday life - at school, a					
nowledge.						
046068	English - Beginners				Z	2
	of everyday life in a written and spoken form. Understanding and use of basic expressions of	of general scientif	ic terminolo	gy (profession		
046069	English - Beginners European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a wr	ritten and enoken	form Unde	retanding an	Z	2
• •	ninology (professional language).	ntterrana spokeri	ioiiii. Oilde	istarianing ari	a asc of bac	or expression
2046126	Czech Lower Intermediate				Z	2
im: Understanding clea	arly what is spoken about everyday situations which a student meets at school or in his/her	free time and sp	eaking abou	ut them. Writ	ing in a simp	ole way about
	and comprehension of simple texts. Improvement of professional language.					
046125	Czech Lower Intermediate				. Z .	2
•	arly what is spoken about everyday situations which a student meets at school or in his/her and comprehension of simple texts. Improvement of professional language.	tree time and sp	eaking abou	it them. vvrit	ing in a simp	ole way about
:046118	Czech -Advanced			<u> </u>	Z	2
	Common European Framework of Reference: B1- B2 The aim: comprehension of spoken C	zech as well as le	ectures give	। n in Czech w		
	discussion. Written and oral skills on advanced level. Ability to write a summary, a report, a		_		_	
cientific articles or text	s from student's field of studies without difficulties. Grammar structures on advanced level.					
046117	Czech -Advanced				Z _	. 2
	en language as well as lectures in Czech on topics familiar to the student. Communication wi vrite an essay or a report. Reading and understanding texts concerning currant issues and		-		sions. Expre	ssing opinions
046127	Czech - Upper Intermediate	populai scientino	and technic	cai ai licies.	Z	2
	I speech about familiar matters that a student meets at work, at school, during free time, ar	nd talking about t	hese topics.	Ability to de	_ ,	
=	ne's opinions and plans. Reading and understanding general and technical texts.	0	•	,	•	
046128	Czech - Upper Intermediate				Z	2
	n European Framework of Reference Level A2-B1. The aim is to extend language skills taking	_	-			-
rminology. Comprehei nowledge technical lar	nsion of standard Czech speech and conversation about topics of everyday life - at school,	at work, during fr	ree time, on	intermediate	e level. Broa	dening the
046119	Czech Language for Beginners I.				Z	2
	ryday life in a spoken and written form. Understanding and use of basic expressions of gen	eral scientific ter	minology (p	। rofessional ।ः		2
046120	Czech Language for Beginners II.		37 (1		Z	2
	n European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a wi	ritten and spoken	form. Unde	rstanding an	d use of bas	
	ninology (professional language).					
046086	French - Lower Intermediate Course				Z	2
- ·	hat is spoken about everyday situations which a student meets at school or in his/her free ti	ime and speaking	g about then	n. Writing in a	a simple way	y about familia
-	nprehension of simple texts. Improvement of professional language.			I	7	2
046087 Janned to the level of (French - Lower Intermediate Course	n ahout everydes	situations 4	which a ctude	Z	2 school or in
apped to the level of C	Common European Framework of Reference: A2 Aim: Understanding clearly what is spoker eaking about them. Writing in a simple way about familiar topics. Reading and comprehens					

2016001			
2046091	French - Advanced	Z	2
	of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on the speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading	-	
	opular scientific and technical articles.	and understanding	texts concerning
2046090	French - Advanced	7	2
	poken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participat	- 1	-
•	ls. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and		_xp.000g
2046089	French - Upper Intermediate	Z	2
	of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students		
	I talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and unders		
2046088	French - Upper Intermediate	7	2
	lard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ab	ility to describe exp	
_	n one's opinions and plans. Reading and understanding general and technical texts.	,	
2046084	French - Beginners	Z	2
	ly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. V	ا Vriting in a simple w	ay about familia
topics. Reading and	comprehension of simple texts. Improvement of professional language.		
2046085	French - Beginners' Course	Z	2
Mapped to the level	of Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which	ch 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	nt of professional lan	guage.
2146060	Indonesian Language Course for Exchange	Z	2
Basic of Indonesian	Language for Student Exchange Program to Indonesia	,	
2146061	Technical Indonesian - Course I.	Z	2
Second part of Indor	nesian Language for Student Exchange Program to Indonesia	1	
2144062	Technical Indonesian - Course II.	Z,ZK	3
Basic of Indonesian	Language for Student Exchange Program to Indonesia	, ,	
2046078	German - Lower Intermediate Course	Z	2
	clearly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking a	ıbout them. Writing i	n a simple way
	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 wh	nich a student meets	
	e and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvem		
2046083	German - Advanced Course	Z	2
Mapped to the level	of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given	in German without	great difficulties
and active participat	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comp	rehension of popula	ar eciontific and
		oronononon or popul	ai-scientinic and
scientific articles or t	exts from student's field of studies without difficulties. Grammar structures on advanced level.	гононовон от роран	ar-scientine and
scientific articles or t		Z	2
2046082	exts from student's field of studies without difficulties. Grammar structures on advanced level. German - Advanced Course poken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participates.	Z	2
2046082 Comprehension of s	German - Advanced Course	Z	2
2046082 Comprehension of s	German - Advanced Course poken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participals. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and	Z	2
2046082 Comprehension of s opinions. Written skill 2046081	German - Advanced Course poken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participals. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and German - Upper Intermediate Course	Z ation in discussions. technical articles.	2 Expressing
2046082 Comprehension of s opinions. Written skill 2046081 Mapped to the level	German - Advanced Course poken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participals. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and	Z ation in discussions. technical articles. Z comes across at w	2 Expressing 2 ork, at school,
2046082 Comprehension of s opinions. Written skill 2046081 Mapped to the level during free time, and	German - Advanced Course poken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participals. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and German - Upper Intermediate Course of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students I talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding standard speech about familiar topics.	Z ation in discussions. technical articles. Z comes across at w	2 Expressing 2 ork, at school,
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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 t	topics familiar to th	e student.
	ttive speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a ular scientific and technical articles.	nd understanding	texts concerning
2046140	Russian - Upper Intermediate	Z	2
	Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student r bout these topics. Ability to describe experiences and events, briefly explain one s opinions and plans. Reading and understa	,	, 0
2046139	Russian - Upper Intermediate	Z	2
Understanding standar	d speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abil	ity to describe exp	eriences and
events, briefly explain of	one's opinions and plans. Reading and understanding general and technical texts.		
2046136	Russian - Beginners	Z	2
Mapped to the level of	Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understand	ing and use of bas	ic expressions
of general scientific ter	minology (professional language)		
2046135	Russian - Beginners	Z	2
Basic vocabulary of even	eryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profes	sional language)	
2046099	Spanish - Lower Intermediate	Z	2
Mapped to the level of	Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a stu	ident meets at sch	ool 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 profe	ssional language.	
2046098	Spanish - Lower Intermediate	Z	2
Understanding clearly	what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wr	iting in a simple w	ay about familiar
topics. Reading and co	mprehension of simple texts. Improvement of professional language.		
2046096	Spanish - Beginners	Z	2
_	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the and comprehension of simple texts. Improvement of professional language.	m. Writing in a sim	ple way about
2046097	Spanish - Beginners	Z	2
Mapped to the Commo	n European Framework of Reference Level A1. Aim: Understanding clearly what is spoken about everyday situations which a	student meets at	school or in
his/her free time and sp	peaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	of professional lan	guage.

List of courses of this pass:

Completion Credits

Z,ZK

Name of the course

Mathematics III

Code

2011009

	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 relation	ons.	
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	solution of ordinal	y differential
	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, grea	ter emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connectior	s between concep	ts. Students
will also get to know	the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: e of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.	igennumbers and	eigenvectors
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. Different	al operators div (d	livergence)
and curl (rotation). I	Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral,	Fubini theorem. Tra	ansformation
of integrals to pola	r, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Greei	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 vecto	r field through a s	urface. The
	Gauss-Ostrogradskij theorem.		
2012035	Algorithmization and Programming Fundamentals	KZ	4
	MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Matr		
• .	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. St	•	
	s: minimum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of		·
2012037	Computer Graphics	KZ	3
2016007	Mathematics I Seminar	Z	2
201A009	Mathematics III.A	ZK	2
201A021	Constructive Geometry A	ZK	3
	The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relation	ons.	
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	1
201A062	Mathematics II.A	ZK	4
	, set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Different	!	

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, independent	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 vector Gauss-Ostrogradskij theorem.	or field through a su	ırface. The
2021025	Physics II.	Z,ZK	4
	ectromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of elec-	-	
	natter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 expe		
2021041	Physics I.	Z,ZK	7
-	namics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic pro	•	
	echanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co ic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect and in		
2026016	measurements of 11 various experiments related to the lectures.	Z	2
2020010	Physics - Seminar The subject is mainly meant for high-school students for repetition of high-school physics.		2
202A025	Physics II.A	ZK	2
	octromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic values.	-	
	natter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 expe	•	
202A041	Physics I.	ZK	3
	namics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic pro	1	
waves. Fluid me	echanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co	nductors, semicon	ductors,
insulators. Magnet	ic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indire measurements of 11 various experiments related to the lectures.	ct measurements,	regression,
2041061	English-Bachelor Exam	Z,ZK	2
	mmon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficul		
2041062	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. German - Bachelor Exam / FME	Z,ZK	2
	German - Dachelor Exam / Five nmon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficul		
	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	,	,
2041063	French - Bachelor Exam /FME	Z,ZK	2
Mapped to the Com	nmon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	ties, to take part in o	discussions,
2041064	Spanish - Bachelor Exam / FME	Z,ZK	2
	mon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult		
	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
iviapped to the Con	nmon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	lies, to take part in t	aiscussioris,
2046068	English - Beginners	Z	2
Aim: Basic voc	abulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (p	orofessional langua	
2046069	English - Beginners	Z	2
mapped to the Con	nmon 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).	g and use of basic o	expressions
2046070	English - 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
2046074	familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.	7	
2046071 Mapped to the Cor	English - Lower Intermediate mmon European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which a s	Z Student meets eithe	2 er at school
• •	time and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improvement		
2046072	English - Upper Intermediate	Z	2
The aim is to extend	d language skills taking into consideration professional English and common professional terminology. Comprehension of standard En about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2		onversation
2046073	English - Upper Intermediate	Z	2
	pmmon European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional Engli		
terminology. Compi	rehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermedi	ate level. Broadenii	ng grammar
2046074	knowledge. English - Advanced	Z	2
	nension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Written		
level. Ability to wri	ite a summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's field	of studies without	difficulties.
2046075	Grammar structures on advanced level. B1 - B2.	Z	2
2046075 Mapped to the Co	English - Advanced pmmon European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in En		
	ation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and comprehen		
00.100==	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.		
2046076 Basic vocabulary o	German - Beginners f everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professior	Z Z	2 responds to
basic vocabulary 0	the Common European Framework of Reference for Languages A1.	iai iai iguaye) ii cof	responds to
2046077	German - Beginners	Z	2
Mapped to the lev	el Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding an	d use of basic expi	ressions of
	general scientific terminology (professional language).		

0040070			
2046078 Aim: Understandir	German - Lower Intermediate Course Ig clearly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking about	Z them Writing in a	2 simple way
Aim. Onderstandii	about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	them. whiting in a	Simple way
2046079	German - Lower Intermediate Course	Z	2
	I of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a Is 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	7	2
	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.	to describe experi	
0040004			
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 nd talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understandii		
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, participatio 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 G	ı — erman without area	1
	ation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehe	-	
	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.	······································	
2046084		7	2
	French - Beginners	. –	I
Understanding clea	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	g in a simple way a	bout familiar
	topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046085	French - Beginners´ Course	Z	2
Mapped to the lev	el of Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which a	student meets at s	school or in
his/her free tin	ne and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	of professional lar	nguage.
2046086	French - Lower Intermediate Course	Z	2
Understanding clea	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	j in a simple way a	bout familiar
Ĭ	topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046087	French - Lower Intermediate Course	Z	2
	rel of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a	_	
	ne and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement		
2046088	French - Upper Intermediate	Z	2
Understanding st	andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	to describe experi	ences and
	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.		
2046089	French - Upper Intermediate	Z	2
Manned to the lev	el of Common Furnacia Francius IV of Deference A2 D4 Understanding standard appeals about familiar tanics, that a students com		
mapped to the let	rel of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students com	nes across at work	, at school,
	refor Common European Framework of Reference.A2 - B1 Onderstanding standard speech about familiar topics, that a students come and talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding talking about these topics.		
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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. familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	Writing in a simple	way about
2046127	Czech - Upper Intermediate	7	2
	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	
	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.		
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 prehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on interm	=	
terminology. Com	knowledge technical language.	lediate level. Broad	ening me
2046135	Russian - Beginners	Z	2
Basic voca	abulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p	rofessional languaç	ge)
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 e	xpressions
2040427	of general scientific terminology (professional language)	7	
2046137	Russian - Lower Intermediate Course orly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	Z uin a simple way ah	2 Out familiar
Oriderstanding clea	topics. Reading and comprehension of simple texts. Improvement of professional language.	in a simple way as	out iaiiiiiai
2046138	Russian - Lower Intermediate Course	Z	2
Mapped to the leve	l of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a studer	nt meets at school o	or in his/her
free time a	nd speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of p	professional langua	ge.
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
2046440	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.	7	2
2046140	Russian - Upper Intermediate rel of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student me	_	
	ng about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding		- 1
2046141	Russian - Advanced	Z	2
Comprehension of	of spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation	n in discussions. Ex	kpressing
opinions. \	Nritten skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a	and technical article	es.
2046142	Russian - Advanced	Z	2
	evel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to	-	
Communication wit	h native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and u currant issues and popular scientific and technical articles.	nderstanding texts	concerning
2046155	English Conversation	Z	2
2040100	Improving communicative skills in speaking on general topics and general technical topics.		_
2046156	English Conversation	Z	2
	Improving communicative skills in speaking on general topics and general technical topics.	'	
2046161	Presentations in English	Z	2
	Preparing students to present in English on technical topics, with a possible co-operation with specialized departments.		
2046162	Presentations in German	Z	2
2046462	Preparation for presenting technical topics in German, possibly in cooperation with specialized departments.	Z	
2046163	Presentations in French language Preparation for presenting technical topics in French, possibly in cooperation with specialized departments.	4	2
2046164	Presentations in Russian	Z	2
2010101	Preparation for presenting technical topics in Russian, possibly in cooperation with specialized departments.	_	-
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		
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		
2131026	ps, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice the Machine Elements and Mechanisms II	ZK	3
	INACTIFIE Elements and infections in the charisms in design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, page 1.5 design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, page 1.5 design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, page 1.5 design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, page 1.5 design calculations and aplication of axles and shafts, sliding and rolling bearings.		-
r rommary doorgri,	and fittings.		20000001100
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		nsmissions
	on, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded	•	
pressed, splined an	nd key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple assen	nbly units is also inc	dispensable
2133013	seminar work. Engineering Design III	Z	2
Z133013	Engineering Design III. Design of assembly unit (draft drawing, detail drawing, assembly drawing, technical report)		۷
2133014	Engineering Design IV.	Z	2
2133014	Design	Z	4
	n, design calculations and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft coupli		•
2141504	Electric Circuits and Electronics	Z,ZK	4
Introduction into the	neory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of	energy. El. Power a	
Introduction into	electronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilize		erational
	amplifier). Analogue and digital circuits. Principle of analogue and digital signal processing, Logical circuits, converters, micropro	Cessor.	

	Electrical machines and drives	Z,ZK	4
j s-priase transion	ctrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transfo		
-	ner, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed- us machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque character	-	-
Control. Cyricinonic	Low-voltage distribution system.	otic. Low Voltage I	noti dinonto.
2144062	Technical Indonesian - Course II.	Z,ZK	3
	Basic of Indonesian Language for Student Exchange Program to Indonesia	_,	
2146060	Indonesian Language Course for Exchange	Z	2
'	Basic of Indonesian Language for Student Exchange Program to Indonesia		
2146061	Technical Indonesian - Course I.	Z	2
	Second part of Indonesian Language for Student Exchange Program to Indonesia		
2151002	Nuclear Power Principles	Z,ZK	5
*	ntals of nuclear energy. Development and heat removal from core. Basic materials for nuclear reactors. Basic types of nuclear reactor		
	reactors. Fuel cycle. Reactor radiation, detection and quantification, determination of radiation doses. Problems of nuclear safety and		
2151090	Industry power and heating plant	Z,ZK	5
2151117	Design of Power Facilities	Z,ZK	5
2151118	Distributed Energy	Z,ZK	5
2151158	Principles of Refrigerating Technology and Heat Pumps	Z,ZK	5
2151165	Hydraulic and Pneumatic Machines	Z,ZK	5
	I principles of operation of hydraulic machines. Criterions of hydrodynamical similarity. Hydraulic systems. Differend types of pumps, on various conditions. Theory of compression processes. Constructions, calculation, capacity control of compressors, operation with va	•	-
<u>-</u>	npressors. Accessories of a compressor stations and plants. Economical and ecological problems of a compressed air production an	-	goramig
2151554	Thermal Turbines	Z,ZK	5
2151559	Heat Exchangers and Boilers	Z,ZK	5
2151702	Renewable Energy Sources	Z,ZK	5
2152028	Energy Audit and Legislation	KZ	5
2152091	Deparmental Project	KZ	2
2153005	Fundamentals of Energy Conversions	Z	1
2153006	Technology of Air Protection in Power Engineering	Z	2
2153000	Presentation of Project	Z	4
2153707	Project I.	Z	5
2153707	Bachelor Thesis	Z	
		Z,ZK	5 5
2181026	Momentum, Mass and Heat Transfer transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical	•	_
	continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and ther		
	systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.		·
2181502	Hydromechanical Equipment	Z,ZK	5
Design, principles a	and basic calculations of following equipment: pipes and pipe networks, packed and bubble columns, filters, settlers, centrifuges and cy		5
	aguinment ailee and conveyers arrichers and mills groupleters extruders injection and blow moulding machines rolls and colo	clones, fluidized b	_
	equipment, silos and conveyors, crushers and mills, granulators, extruders, injection and blow moulding machines, rolls and cale	nders.	eds, mixing
2181507	Diffusion separation equipment	nders. Z,ZK	peds, mixing
Classis from Equip	Diffusion separation equipment ment for diffusion separation processes are giving a basic knowledge of processes and equipments where gas or liquid mixture is bee	Z,ZK en separated due	beds, mixing 5 to principals
Classis from Equip	Diffusion separation equipment ment for diffusion separation processes are giving a basic knowledge of processes and equipments where gas or liquid mixture is been call equilibriums or on the basis of mass transfer mechanisms. They are used for concentrating of products from dilute solutions or in the second	Z,ZK en separated due	beds, mixing 5 to principals
Classis from Equip of physical-chemic	Diffusion separation equipment ment for diffusion separation processes are giving a basic knowledge of processes and equipments where gas or liquid mixture is been cal equilibriums or on the basis of mass transfer mechanisms. They are used for concentrating of products from dilute solutions or in gasses or liquid solutions.	nders. Z,ZK en separated due turn for purification	5 to principals a of diluted
Classis from Equiporting of physical-chemical 2181508	Diffusion separation equipment ment for diffusion separation processes are giving a basic knowledge of processes and equipments where gas or liquid mixture is been call equilibriums or on the basis of mass transfer mechanisms. They are used for concentrating of products from dilute solutions or in gasses or liquid solutions. Heat transfer equipments	nders. Z,ZK en separated due turn for purification Z,ZK	5 to principals a of diluted
Classis from Equiporting of physical-chemical 2181508	Diffusion separation equipment ment for diffusion separation processes are giving a basic knowledge of processes and equipments where gas or liquid mixture is been cal equilibriums or on the basis of mass transfer mechanisms. They are used for concentrating of products from dilute solutions or in gasses or liquid solutions.	nders. Z,ZK en separated due turn for purification Z,ZK	5 to principals a of diluted
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Classis from Equiping of physical-chemic 2181508 Fundamentals of the 2182019 General chemistre	Diffusion separation equipment ment for diffusion separation processes are giving a basic knowledge of processes and equipments where gas or liquid mixture is been call equilibriums or on the basis of mass transfer mechanisms. They are used for concentrating of products from dilute solutions or in the gasses or liquid solutions. Heat transfer equipments ermodynamics and conductive and convective heat transfer. Enthalpy balancing. Technical thermodynamics and basic thermodynamics mechanical design, thermal and hydraulic design of a heat exchangers, evaporators and dryers. Chemistry y from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties in, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochem	nders. Z,ZK en separated due turn for purification Z,ZK cycles. Functional KZ of matter, thermo	5 to principals of diluted 5 description, 3 dynamics,
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Classis from Equiping of physical-chemical 2181508 Fundamentals of the 2182019 General chemistric phase equilibrium 2182091 2183091 2183707	Diffusion separation equipment ment for diffusion separation processes are giving a basic knowledge of processes and equipments where gas or liquid mixture is been call equilibriums or on the basis of mass transfer mechanisms. They are used for concentrating of products from dilute solutions or in the gasses or liquid solutions. Heat transfer equipments ermodynamics and conductive and convective heat transfer. Enthalpy balancing. Technical thermodynamics and basic thermodynamics mechanical design, thermal and hydraulic design of a heat exchangers, evaporators and dryers. Chemistry y from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties in, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochem oriented upon the material properties measurement. Project Absolvent se seznámí se základy oboru Procesní technika. Project Presentation Preparation and presentation of a given project theme. Project I. Project, dimensioning and designing solution of basic elements for process technology.	nders. Z,ZK en separated due eturn for purification Z,ZK cycles. Functional KZ of matter, thermonistry. Laboratory KZ Z	5 to principals of diluted 5 description, 3 dynamics, practice is 2 4 5
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2322029	Materials Science I.	KZ	3
History and proces	t state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, deform		
	als, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, iro		
2362091	Project	KZ	2
2363091	Project Presentation	Z	4
2371047	Automatic Control	Z,ZK	5
Automatic controlle	s are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automatic	c control theory a	nd practice
like transfer functions	, open versus closed loop control, design of controllers and frequency based analysis of control systems. The course also concentrate	es on logic contro	l and control
via programmable	logic controllers. Some seminaries are arranged in laboratories where practical skills and control engineering methods are trained. \$ MATLAB software as a common platform of control engineers.	Students begin to	work with
2372041	Computer Support for Study	KZ	3
	s students into creating technical and professional documents on computers or Web and into realizing technical computations with the	e use of compute	rs. Students
	skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technic		
2372083	Measurement in Engineering	KZ	3
	r principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and	erification of mea	_
	instruments.		
2372091	Project	KZ	2
	An individual project from the branch of specialisation, which student will study on his/her magister level	• •-	_
2373091	Project presentation	Z	4
	chelor work presentation. Student should study the presentation software possibilities and proposition of the department. Student sh	_	
•	f his diploma or bachelor work and present it in the face of the other student. The presentation will continue with discussion. Consec		
	presented as a pdf file on a temporal web page.	,,,	
2381054	Management and Economics of the Enterprise	Z,ZK	4
	ed to teach the students of the Faculty of Mechanical Engineering the basic economic starting points necessary for technical reasoning	,	1
•	ps between economic quantities costs - revenues, expenses - incomes and other basic economic terms. The goal is for the audience		
	organizations, every product or service is valued at a selling price and therefore it is necessary to understand the simple costing of p		
	nter reports and should understand the basic structure of financial statements. As a future manager, he will compile and approve the		
of management, the	ey will learn basic managerial functions and their content. Furthermore, they will learn how to use network analysis in project manag	oment For decisi	
ρι	rposes, they will learn the applications of multi-criteria decision-making. The basics of marketing and strategic management will be	ement. For decisi	on-making
			on-making
2383001	Fundamentals of Law		on-making
	Fundamentals of Law egal system is a necessary part of professional equipment of each expert with university degree. The aim of this course is to provide	introduced.	2
Basic orientation in		introduced. Z e a view into the 0	2 Czech Legal
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For updated information see http://bilakniha.cvut.cz/en/FF.html Generated: day 2025-10-16, time 11:10.