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 prine	lassificiation and principles of operation of hydraulic machines. Criterions of hydrodynamical similarity. Hydraulic systems. Differend types of pumps, construction, capacity contr						
and operation in variou	s conditions. Theory of compression processes. Constructions, calculation, capacity control of compressors, operation with v	arious gases. Refi	igerating				
compressors. Accessor	ries of a compressor stations and plants. Economical and ecological problems of a compressed air production and distribution	า.					
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

Note on the group: 12B**1P-KMEN#

Note on the group).	I XIVILLI VIII				
Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2182019	Chemistry Radek Šulc, Martin Dostál, Vojt ch B lohlav, Stanislav Solna , Jan Sko ilas Radek Šulc Radek Šulc (Gar.)	KZ	3	2P+1C	1	Р
2011021	Constructive Geometry Ivana Linkeová	Z,ZK	6	3P+2C	*	Р
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

2402040	Ch a maintain.	1/7	_					
2182019	Chemistry	KZ	3					
General chemistry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties of matter, thermodynamics,								
phase equilibrium, chen	nical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and bioch	emistry. Laborato	ry practice is					
oriented upon the mater	ial properties measurement.							
2011021	Constructive Geometry	Z,ZK	6					
The subject is focused of	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 en	mphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connec	tions between co	ncepts. Students					
will also get to know the	procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic area	s: eigennumbers	and eigenvectors					
of a matrix, Taylor polyn	omial, integral as a limit function, integration of some special functions.							
2372041	Computer Support for Study	KZ	3					
The course introduces s	tudents into creating technical and professional documents on computers or Web and into realizing technical computations w	ith the use of com	puters. Students					
gain practical skills by c	reating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical	-based WWW pag	ge.					
K333038	Fundamentals of Technology I.	Z	3					
Production processes in	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 te	echnology. Hot an	d cold forging.					

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 #

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, Eliška Gal íková, Ji í Cejp, Pavlína Hájková, Jan Kr il, Vladimír Mára, Lucie Pilsová, Ta ana Vacková Jana Sobotová Jana Sobotová (Gar.)		3	2P+1L	2	Р
2012037	Computer Graphics Marta Hlavová, Ji í Holman, Nikola Pajerová, Martin Hanek, Jan Karel, Ivana Linkeová, Jaroslav Cibulka Ivana Linkeová Ivana Linkeová (Gar.)	KZ	3	1P+1C	*	Р

2131002	Engineering Design II Eliška Cézová, Jan Flek, Jan Kanaval, Karel Petr, Martin Dub, Martin Havlí ek, Jan Hoidekr, František Lopot, Roman Uhlí Karel Petr Karel Petr (Gar.)	Z,ZK	4	2P+3C	2	Р
Characteristic	s of the courses of this group of Study Plan: Code=12DSK2P-KMEN Name	e=00 2012 D I	kmenove	é 2. semes	tr STR ko	ombinované
2021041	Physics I.			Z	,ZK	7
	ynamics of a particle motion. Principle of conservation of energy. System of particles, centre of ma	• ,				

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) 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

Design of assembly unit (draft drawing, detail drawing, assembly drawing, technical report)

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 Radka Keslerová, Ji í Holman, Gejza Dohnal, Marta ertíková, Vladimír Hric, Jan Valášek, Lud k Beneš, Tomáš Bodnár, Tomáš Neustupa, Stanislav Kra mar Stanislav Kra mar (Gar.)	Z,ZK	5	2P+2C	*	Р
2311101	Mechanics I. 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. Jana Sobotová, Eliška Gal íková, Ji í Cejp, Pavlína Hájková, Jan Kr il, Vladimír Mára, Lucie Pilsová, Ta ana Vacková, Jan Walter, Jana Sobotová Jana Sobotová (Gar.)	Z,ZK	4	2P+2L	*	Р
2133013	Engineering Design III. Jan Kanaval, Jan Hoidekr, František Lopot, David Skalický, Roman Uhlí Jan Kanaval Jan Kanaval (Gar.)	Z	2	0P+2C	Z	Р
2012035	Algorithmization and Programming Fundamentals Ji í Holman, Marta ertíková, Vladimír Hric, Lukáš Hájek, Jan Halama, Vladimír Prokop, Martin Hanek, Jan Karel, Josef Musil, Petr Svá ek Petr Svá ek (Gar.)		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. Z,ZK 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 experiments related to the lectures. 2011009 Mathematics III Z,ZK An introductory course in ordinary differential equation and infinite series 2311101 Z,ZK 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. There are introduced the methods of description of position and motion of particles and rigid bodies. 2321039 Materials Science II. Z,ZK 4 Fundamentals of metallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and thermo-mechanical processing, technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materials. Engineering Design III. Ζ 2

2012035 Algorithmization and Programming Fundamentals

(Z

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. Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Zbyn k Šika, Václav Bauma Václav Bauma (Gar.)	Z,ZK	4	2P+2C	*	Р
2011049	Numerical Mathematics Radka Keslerová, Ji í Holman, Marta ertíková, Vladimír Hric, Petr Louda, Lukáš Hájek, Jan Valášek, Lud k Beneš, Tomáš Bodnár, Petr Svá ek Petr Svá ek (Gar.)	Z,ZK	4	2P+2C	4	Р
2133014	Engineering Design IV. František Lopot František Lopot (Gar.)	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.

Kinematics of point and of rigid bodies. Transformation matrix. Kinematics of concurrent movements. Motion: translation, rotation, general planar motion, spherical motion, screw motion, general spatial motion. Composition of mechanisms. Basic planar mechanisms. Analytical methods in kinematics of mechanisms - Trigonometric and vector method. Graphical methods in kinematics. Basic theory of gearing. Transmition mechanisms with geers. Strutting and seezing in mechanisms. Cable mechanisms.

2011049	Numerical Mathematics ution of systems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical and boundary value problems. Numerical solution of basic linear partial differential equations by finite difference method.		4
Numerical solution of	systems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Nume	rical solution of ord	dinary differential
equations, initial and	boundary value problems. Numerical solution of basic linear partial differential equations by finite difference method.		
2133014	Engineering Design IV	7	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

Numerical Mathematics

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:

Credits in the group: 0

Note on the group:

2011010

12B*K5P-KMEN #

TOLC OIL LICE	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
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 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 Václav Pilík Václav Pilík (Gar.)	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

2131512 Machine Elements and Mechanisms I.	Z.ZK
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Joints and joining elements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, keys). Mechanical transmissions (belt, chain, friction, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded connecting bolts, clamped, pressed, splined and key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple assembly units is also indispensable seminar work.

2141504	Electric Circuits and Electronics			7	ZZK	4
	of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient state	tes in circuits wit	h accumula			
	onics. Principle and typical parameters of basic semiconductor components. Application in ele			_	-	
amplifier). Analogue an	d digital circuits. Principle of analogue and digital signal processing. Logical circuits, converte	ers, microproces	sor.			
2372083	Measurement in Engineering				KZ	3
•	nciples for measurement of non-electrical variables (temperature, position, force, speed, acce	eleration, torque)	. Calibration	and verification	ation of measu	rement
nstruments.	T=					
K341014	Technology II.			Z	,ZK	5
2153005	Fundamentals of Energy Conversions				Z	1
2383001	Fundamentals of Law			١	Z	2
_	al system is a necessary part of professional equipment of each expert with university degrees of law and system of law (branch of law), using tutorials, lectures, specialised literature an			-		_
•	at will be regularly in touch with, especially during their professional career and to learn how		•		•	
•	some practical habits and processes while putting the law on, especially in domain of contract					
to prepare professional	presentations and to understand basic structures between law and engineering					
Code of the ar	oup: 12DSK6P-KMEN					
_	roup: 00 2012 D kmenové 6. semestr STR kombinova	né				
_	·	ii iC				
-	credits in the group:					
Requirement of	courses in the group:					
Credits in the	group: 0					
Note on the gr	oun: 12B**6P-k	(MEN#				
	Name of the course / Name of the group of courses					
Codo	(in case of groups of sources the list of codes of their	Completion	Cradita	Soons	Samastar	Polo
Code	members)	Completion	Credits	Scope	Semester	Role
	Tutors, authors and guarantors (gar.)					
2371047	Automatic Control	Z,ZK	5	3P+15C+05L	*	Р
23/104/	Milan Hofreiter, R žena Petrová, Tomáš Vyhlídal, Jaromír Fišer Tomáš Vyhlídal Tomáš Vyhlídal (Gar.)	Z,ZN	5	3-130-01		Р
	Machine Elements and Mechanisms II					
2131026	Eliška Cézová, Jan Flek, Jan Kanaval, Karel Petr, Zden k ešpíro, Martin	ZK	3	3P+0C	*	Р
	Dub, František Lopot, Ji í Houkal František Lopot František Lopot (Gar.)					
2141505	Electrical machines and drives Jan Chyský, Jaroslav Novák, Lukáš Novák Jaroslav Novák Jaroslav Novák	Z,ZK	4	2P+06C+14L	*	Р
	(Gar.)	_,	-			•
2133025	Design	Z	4	0P+4C	*	Р
	František Lopot František Lopot (Gar.)			01 1 10		•
2381054	Management and Economics of the Enterprise Theodor Beran, Št pánka Uli ná, Vladimír Brdek, Ladislav Vaniš, Petr Žemli ka	Z,ZK	4	2P+2C	*	Р
2001001	Theodor Beran Theodor Beran (Gar.)	_,、		220		•
	Momentum, Mass and Heat Transfer		_			
2181026	Martin Dostál, Vojt ch B lohlav, Stanislav Solna , Jan Sko ilas, Tomáš Jirout,	Z,ZK	5	3P+1C	*	Р
	Adam Krupica, Ji í Moravec Tomáš Jirout Tomáš Jirout (Gar.)					
Characteristics of	the courses of this group of Study Plan: Code=12DSK6P-KMEN Name	=00 2012 D I	rmenové	6. semes	tr STR kon	nbinova
2371047	Automatic Control				,ZK	5
-	re important part of many industrial processes. The goal of this course is to introduce studen	nts into basic kno	wledge of a			-
like transfer functions, c	open versus closed loop control, design of controllers and frequency based analysis of control	systems. The co	urse also co	oncentrates	on logic contro	l and contr
	controllers. Some seminaries are arranged in laboratories where practical skills and control	engineering met	hods are tra	ained. Stude	nts begin to w	ork with
	common platform of control engineers.					
2131026	Machine Elements and Mechanisms II				ZK	3
· -	sign calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connecti	ions, elements of	crank mecr	nanism, pipe	lines and their	accessori
and fittings. 2141505	Floctrical machines and drives			7	,ZK	4
	Electrical machines and drives al power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hy	rsteresis Ioon Ele	ectromagne			•
	perating conditions, rated (scheduled) values. Induction machine, principle, construction, ope	-	_			
•	nachines. DC-machines, principle, parameters, operating conditions, construction, starting, sp	•	•			
Low-voltage distribution	ı system.					
2133025	Design				Z	4
Design, design calculat	tions and their aplications in case of geared transmissions, axles and shafts, sliding and rolling	ng bearings, sha	ft couplings	and clutche	S	
2381054	Management and Economics of the Enterprise			Z	,ZK	4
	to teach the students of the Faculty of Mechanical Engineering the basic economic starting po	-		_	-	
· · · · · · · · · · · · · · · · · · ·	between economic quantities costs - revenues, expenses - incomes and other basic economic	-				
_	anizations. every product or service is valued at a selling price and therefore it is necessary to er reports and should understand the basic structure of financial statements. As a future man		-			-
	er reports and should understand the basic structure of financial statements. As a future man rill learn basic managerial functions and their content. Furthermore, they will learn how to use	-	-			
of management, they w		ununya	٢. ٥,٥٥٥		51 4501510	
	n the applications of multi-criteria decision-making. The basics of marketing and strategic ma	anagement will b	e introduce	d.		
-	n the applications of multi-criteria decision-making. The basics of marketing and strategic made Momentum, Mass and Heat Transfer	anagement will b	e introduce		,ZK	5

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

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2383009	Communication and Dealing with People Vladimír Brdek, Jan Horejc Jan Horejc Jan Horejc (Gar.)	Z	2	1P+1C	*	PV

Characteristics of the courses of this group of Study Plan: Code=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 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

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

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 diff	iculties, to take pa	rt 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 diff	iculties, to take pa	rt 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 diff	iculties, to take pa	rt 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 diff	iculties, to take pa	rt 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 diff	iculties, to take pa	rt 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 Tomáš Jirout	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 proj						
2362091	Project	KZ	2			
2152091	Deparmental Project	KZ	2			
2182091	Project	KZ	2			
Absolvent se sez	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 Tomáš Jirout	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		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. Consequently, the work should be							
presented as a pdf file	presented as a pdf file on a temporal web page.						
2183091	Project Presentation	Z	4				
Droporation and proce	Proporation and proporation 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. Radek Šulc, Lukáš Krátký Lukáš Krátký Lukáš Krátký (Gar.)	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	and 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 Tomáš Jirout Tomáš Jirout Tomáš Jirout (Gar.)	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 co	equipment, silos and conveyors, crushers and mills, granulators, extruders, injection and blow moulding machines, rolls and calenders.					
2151002	Nuclear Power Principles	Z,ZK	5			
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 Tomáš Jirout	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	Z	5						
Bachelor thesis is final	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 per	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, Vojt ch B lohlav Radek Šulc Radek Šulc (Gar.)	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, Stanislav Solna Martin Dostál Martin Dostál (Gar.)	Z,ZK	5	2P+2C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12BS*8R-EPT-ZAM Name=17 2012 BSTR 8.sem 2povvol EPT-zam

2181507 Diffusion separation equipment Z,ZK 5
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 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 solutions.

2152028 Energy Audit and Legislation

2152028	Energy Audit and Legislation	KZ	5
2151702	Renewable Energy Sources	Z,ZK	5
2181508	Heat transfer equipments	Z,ZK	5
Eundomontolo of thorm	edynamics and conductive and convective heat transfer Enthalmy halancing Technical thermodynamics and heats thermodyna	mia ovalaa Eupati	onal decariation

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

Physics II A

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

2024025

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.

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Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
202A041	Physics I.	ZK	3	0P+0L	*	V
202A025	Physics II.A	ZK	2	0P+0C	*	V
201A021	Constructive Geometry A Ivana Linkeová	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 volitelné pro STR

202A041 | 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.

ı	202/1020	i flysics ii.A	211						
l	Faraday's law of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic waves. Interaction								
ı	of radiation with matter. F	Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom a	nd periodic syster	n of elements.					
	Spectra, x-rays, ;laser. B	ectra, x-rays, ;laser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiments related to the lectures.							
ı									

Spectra, x-rays, ;laser. E	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.

20	1A009	Mathematics III.A	ZK	2
20	1A049	Numerical Mathematics A	ZK	2

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

Name of the group: 05 2012 doporu ené seminá e

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

Credits in the group: 0

Note on the group: Pokud si chce student své dosud získané znalosti (například z matematiky, fyziky, cizích jazyků

atd.) doplnit, může si zapsat některý z volitelných předmětů, které příslušné ústavy pro 1. semestr

(zimní) vypisují. Doporučujeme zejména předměty uvedené v této skupině

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Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2026016	Physics - Seminar	Z	2	0P+2C	1	V
2016007	Mathematics I Seminar Radka Keslerová, Hynek ezní ek, Olga Majlingová Radka Keslerová Gejza Dohnal (Gar.)	Z	2	0P+2C	1	V

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

2026016	Physics - Seminar	Z	2			
The subject is mainly n	he 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 g	Name of the course / Name of the group of courses					
Code	(in case of groups of courses the list of codes of their members)	Completion	Credits	Scope	Semester	Role
	Tutors, authors and guarantors (gar.)					
2046155	English Conversation Ilona Šimice, Michele Le Blanc Ilona Šimice Michele Le Blanc (Gar.)	Z	2	0P+2C	*	٧
2046156	English Conversation Ilona Šimice, Michele Le Blanc	Z	2	0P+2C	L	V
2046071	English - Lower Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová	Z	2	0P+2C	L	V
2046070	English - Lower Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046074	English - Advanced Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová, 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, Michael Le Blanc Ilona Šimice Ilona Šimice (Gar.)	Z	2	0P+2C	L	V
2046072	English - Upper Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046073	English - Upper Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Ilona Šimice Ilona Šimice (Gar.)	Z	2	0P+2C	L	V
2046068	English - Beginners Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046069	English - Beginners Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Ilona Šimice	Z	2	0P+2C	L	V

2046126	Czech Lower Intermediate	Z	2	0P+2C	L	V
	Jaroslava Kommová Czech Lower Intermediate					-
2046125	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 Michaela Schusová, Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	L	V
2046091	French - Advanced Michaela Schusová, 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 Michaela Schusová, Dušana Jirovská 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 Michaela Schusová, Dušana Jirovská Michaela Schusová Dušana Jirovská (Gar.)	Z	2	0P+2C	L	V
2146060	Indonesian Language Course for Exchange	Z	2	0P+2C	*	V
2146061	Technical Indonesian - Course I.	Z	2	0P+2C	Z	V
2144062	Technical Indonesian - Course II.	Z,ZK	3	1P+2C	L	V
2046078	German - Lower Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046079	German - Lower Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046083	German - Advanced Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Jaroslava Kommová Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
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 Michaela Schusová, 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 Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046161	Presentations in English Michaela Schusová	Z	2	0P+2C	*	V
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	*	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	V
2046138	Russian - Lower Intermediate Course Michaela Schusová, 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 Michaela Schusová, Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046140	Russian - Upper Intermediate Michaela Schusová, 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 Michaela Schusová, 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 Michaela Schusová, 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	V
2046096	Spanish - Beginners Michaela Schusová, Eliška Vítková, Jaime Andrés Villagómez Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046097	Spanish - Beginners Michaela Schusová, Jaime Andrés Villagómez Jaime Andrés Villagómez Jaime Andrés Villagómez (Gar.)	Z	2	0P+2C	L	V

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

2046155	English Conversation	Z	2
Improving communicat	ive skills in speaking on general topics and general technical topics.	1	1
2046156	English Conversation	Z	2
Improving communicat	ive skills in speaking on general topics and general technical topics.		1
2046071	English - Lower Intermediate	Z	2
Mapped to the Commo	n European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which	a student meets	either at school
or at his/her free time a	and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improvement	nent of profession	al language.
2046070	English - Lower Intermediate	Z	2
Aim: Understanding cle	early what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	em. Writing in a si	mple way about
familiar topics. Reading	g and comprehension of simple texts. Improvement of professional language. A1 - A2.		
2046074	English - Advanced	Z	2
The aim: comprehension	on of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Wri	tten and oral skills	on advanced
	summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student´s fie	eld of studies with	out difficulties.
	n advanced level. B1 - B2.		
2046075	English - Advanced	Z	2
	in European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in I		
	in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and compre	hension of popul	ar-scientific and
scientific articles or tex	ts from student's field of studies without difficulties. Grammar structures on advanced level.		
2046072	English - Upper Intermediate	Z	2
The aim is to extend la	nguage skills taking into consideration professional English and common professional terminology. Comprehension of standard	_	_
The aim is to extend lar about topics of everyda	nguage skills taking into consideration professional English and common professional terminology. Comprehension of standard by life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1.	_	and conversation
The aim is to extend lar about topics of everyda 2046073	nguage skills taking into consideration professional English and common professional terminology. Comprehension of standard lay life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1. English - Upper Intermediate	d English speech	and conversation
The aim is to extend lan about topics of everyda 2046073 Mapped to the Commo	nguage skills taking into consideration professional English and common professional terminology. Comprehension of standard life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1. English - Upper Intermediate In European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional Er	d English speech	and conversation 2 n professional
The aim is to extend lat about topics of everydal 2046073 Mapped to the Commot terminology. Comprehe	nguage skills taking into consideration professional English and common professional terminology. Comprehension of standard lay life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1. English - Upper Intermediate	d English speech	and conversation 2 n professional
The aim is to extend land about topics of everydate 2046073 Mapped to the Commot terminology. Comprehence knowledge.	nguage skills taking into consideration professional English and common professional terminology. Comprehension of standard and life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1. English - Upper Intermediate In European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional Erension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate	d English speech Z nglish and commo	and conversation 2 In professional adening grammar
The aim is to extend land about topics of everydar 2046073 Mapped to the Commot terminology. Comprehe knowledge.	nguage skills taking into consideration professional English and common professional terminology. Comprehension of standard and life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1. English - Upper Intermediate English - European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional English and conversation about topics of everyday life - at school, at work, during free time, on intermediate. English - Beginners	d English speech Z nglish and commonediate level. Brown	and conversation 2 on professional adening grammar
The aim is to extend lar about topics of everyda 2046073 Mapped to the Commot terminology. Comprehe knowledge. 2046068 Aim: Basic vocabulary	nguage skills taking into consideration professional English and common professional terminology. Comprehension of standard and life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1. English - Upper Intermediate on European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional English of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate. English - Beginners of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional professional profession	d English speech Z nglish and commonediate level. Brown	2 on professional adening grammar 2 laage). A1
The aim is to extend lar about topics of everyday 2046073 Mapped to the Commot terminology. Comprehe knowledge. 2046068 Aim: Basic vocabulary 2046069	nguage skills taking into consideration professional English and common professional terminology. Comprehension of standard by life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1. English - Upper Intermediate on European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional English of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate. English - Beginners of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (page 1).	Z nglish and common diate level. Broadlessional language.	2 on professional adening grammar 2 laage). A1 2
The aim is to extend lar about topics of everyday 2046073 Mapped to the Commot terminology. Comprehe knowledge. 2046068 Aim: Basic vocabulary 2046069 Mapped to the Commod	nguage skills taking into consideration professional English and common professional terminology. Comprehension of standard and life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1. English - Upper Intermediate In European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional English of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate English - Beginners of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (page 1). English - Beginners In European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of everyday life in a written and spoken form. Understanding and use of everyday life in a written and spoken form. Understanding and use of everyday life in a written and spoken form. Understanding and use of everyday life in a written and spoken form. Understanding and use of everyday life in a written and spoken form. Understanding and use of everyday life in a written and spoken form.	Z nglish and common diate level. Broadlessional language.	2 on professional adening grammar 2 laage). A1 2
The aim is to extend lar about topics of everyday 2046073 Mapped to the Commot terminology. Comprehe knowledge. 2046068 Aim: Basic vocabulary 2046069 Mapped to the Commot of general scientific terminology.	reguage skills taking into consideration professional English and common professional terminology. Comprehension of standard and life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1. English - Upper Intermediate In European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional English of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate English - Beginners of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (periodes) English - Beginners n European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of periodes in a written and spoken form. Understanding including the content of the periodes in a written and spoken form. Understanding including the content of the periodes in a written and spoken form. Understanding including the periodes in a written and spoken form. Understanding including the periodes in a written and spoken form. Understanding including the periodes in a written and spoken form. Understanding including the periodes in the peri	Z nglish and common nediate level. Broad or of essional languard and use of the desired control of the control	2 on professional adening grammar 2 laage). A1 2 pasic expressions
The aim is to extend lar about topics of everyday 2046073 Mapped to the Commot terminology. Comprehe knowledge. 2046068 Aim: Basic vocabulary 2046069 Mapped to the Commot of general scientific term 2046126	reguage skills taking into consideration professional English and common professional terminology. Comprehension of standard and life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1. English - Upper Intermediate In European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional English of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate. English - Beginners of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (periodessional language). Czech Lower Intermediate	Z nglish and common nediate level. Broad professional languard and use of both the desired and use of both the des	2 on professional adening grammar 2 laage). A1 2 pasic expressions
The aim is to extend lar about topics of everyday 2046073 Mapped to the Commot terminology. Comprehe knowledge. 2046068 Aim: Basic vocabulary 2046069 Mapped to the Commot of general scientific ter 2046126 Aim: Understanding clean	reguage skills taking into consideration professional English and common professional terminology. Comprehension of standard and life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1. English - Upper Intermediate In European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional English of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate. English - Beginners of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (periodessional language). English - Beginners neuropean Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understandinology (professional language). Czech Lower Intermediate early what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	Z nglish and common nediate level. Broad professional languard and use of both the desired and use of both the des	2 on professional adening grammar 2 laage). A1 2 pasic expressions
The aim is to extend lar about topics of everyday 2046073 Mapped to the Commot terminology. Comprehe knowledge. 2046068 Aim: Basic vocabulary 2046069 Mapped to the Commot general scientific ter 2046126 Aim: Understanding cle familiar topics. Reading	reguage skills taking into consideration professional English and common professional terminology. Comprehension of standard and life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1. English - Upper Intermediate In European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional English and conversation about topics of everyday life - at school, at work, during free time, on intermediate English - Beginners of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (periode in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (periode in a written and spoken form. Understanding	Z Inglish and common and are level. Broad and languard and use of but the common and the common	2 on professional adening grammar 2 laage). A1 2 laasic expressions 2 mple way about
The aim is to extend lar about topics of everyday 2046073 Mapped to the Common terminology. Comprehe knowledge. 2046068 Aim: Basic vocabulary 2046069 Mapped to the Common of general scientific ter 2046126 Aim: Understanding cle familiar topics. Reading 2046125	reguage skills taking into consideration professional English and common professional terminology. Comprehension of standard and life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1. English - Upper Intermediate In European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional English and conversation about topics of everyday life - at school, at work, during free time, on intermediate English - Beginners of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (periodessional language). English - Beginners In European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (periodessional language). Czech Lower Intermediate Early what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the grand comprehension of simple texts. Improvement of professional language. Czech Lower Intermediate	Z Inglish and common nediate level. Broad professional languary and use of but the sem. Writing in a signal and the sem. Writing in a signal and the sem.	2 on professional adening grammar 2 aage). A1 2 pasic expressions 2 mple way about
The aim is to extend lar about topics of everyday 2046073 Mapped to the Common terminology. Comprehension Research Rese	reguage skills taking into consideration professional English and common professional terminology. Comprehension of standard and life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1. English - Upper Intermediate In European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional English and conversation about topics of everyday life - at school, at work, during free time, on intermediate English - Beginners of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (periode in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (periode in a written and spoken form. Understanding	Z Inglish and common nediate level. Broad professional languary and use of but the sem. Writing in a signal and the sem. Writing in a signal and the sem.	2 on professional adening grammar 2 aage). A1 2 pasic expressions 2 mple way about

2046118	Czech -Advanced	Z	2
Mapped to the level of C	common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in C	zech without grea	at difficulties and
active participation in a	discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehen	sion of popular-so	cientific and
scientific articles or text	s from student's field of studies without difficulties. Grammar structures on advanced level.		
2046117	Czech -Advanced	Z	2
	en language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in		
	write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical at		cooning opinionic.
		Z	2
2046127	Czech - Upper Intermediate		_
_	speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abili	ity to describe exp	eriences and
	ne's opinions and plans. Reading and understanding general and technical texts.		
2046128	Czech - Upper Intermediate	Z	2
Mapped to the Commor	n European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional	I Czech and comm	non professional
terminology. Comprehe	nsion of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on interi	mediate level. Bro	adening the
knowledge technical lar	guage.		
2046119	Czech Language for Beginners I.	Z	2
	ryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profes	ssional language)	_
2046120		7	2
	Czech Language for Beginners II.	. – .	
	European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understan	iding and use of ba	asic expressions
	ninology (professional language).		
2046086	French - Lower Intermediate Course	Z	2
Understanding clearly w	rhat is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wri	iting in a simple w	ay about familiar
topics. Reading and cor	nprehension of simple texts. Improvement of professional language.		
2046087	French - Lower Intermediate Course	Z	2
	Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which		
' '	eaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement		
		- professionalian	
2046091	French - Advanced		2
' '	Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on to	-	
Communication with na	ive speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading ar	nd understanding	texts concerning
currant issues and popu	llar scientific and technical articles.		
2046090	French - Advanced	Z	2
Comprehension of spok	en language as well as lectures in French on topics familiar to the student. Communication with native speakers, participatio	n in discussions. I	Expressing
1 '	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and te		, ,
2046089		7	2
	French - Upper Intermediate		
1	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students or		
	king about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understa	anding general and	
2046088	French - Upper Intermediate	Z	2
Understanding standard	speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abili	ity to describe exp	eriences and
events, briefly explain o	ne´s opinions and plans. Reading and understanding general and technical texts.		
2046084	French - Beginners	7	2
	that is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wri	iting in a simple w	
1	nprehension of simple texts. Improvement of professional language.	g a op.o	ay about tarrillar
		7	
	French - Beginners' Course	Z	2
	Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which		
his/her free time and sp	eaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of	of professional lan	iguage.
2146060	Indonesian Language Course for Exchange	Z	2
Basic of Indonesian Lar	guage for Student Exchange Program to Indonesia		
2146061	Technical Indonesian - Course I.	Z	2
	an Language for Student Exchange Program to Indonesia	_	_
2144062	Technical Indonesian - Course II.	7.71/	
			2
Dasic of Indonesian Lar		Z,ZK	3
	guage for Student Exchange Program to Indonesia		
2046078	German - Lower Intermediate Course	Z	2
		Z	2
Aim: Understanding clea	German - Lower Intermediate Course	Z	2
Aim: Understanding clear about familiar topics. Re	German - Lower Intermediate Course arly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking about	Z	2
Aim: Understanding clear about familiar topics. Re 2046079	German - Lower Intermediate Course arly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking about adding and comprehension of simple texts. Improvement of professional language. German - Lower Intermediate Course	Zout them. Writing i	2 n a simple way 2
Aim: Understanding clea about familiar topics. Re 2046079 Mapped to the level of C	German - Lower Intermediate Course arly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking about adding and comprehension of simple texts. Improvement of professional language. German - Lower Intermediate Course common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which	Z out them. Writing i Z th a student meets	2 n a simple way 2 s either at school
Aim: Understanding cleabout familiar topics. Re 2046079 Mapped to the level of Cor in his/her free time at	German - Lower Intermediate Course arly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking about adding and comprehension of simple texts. Improvement of professional language. German - Lower Intermediate Course Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement	Z out them. Writing i Z ch a student meets ent of professional	2 n a simple way 2 s either at school language.
Aim: Understanding cleabout familiar topics. Res 2046079 Mapped to the level of Cor in his/her free time at 2046083	German - Lower Intermediate Course arly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking about ading and comprehension of simple texts. Improvement of professional language. German - Lower Intermediate Course common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improveme German - Advanced Course	Z ch a student meets ent of professional	2 n a simple way 2 s either at school language. 2
Aim: Understanding cleabout familiar topics. Res 2046079 Mapped to the level of Cor in his/her free time at 2046083 Mapped to the level of Cor in his/her free time at 2046083	German - Lower Intermediate Course arly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking about ading and comprehension of simple texts. Improvement of professional language. German - Lower Intermediate Course common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts. Improveme German - Advanced Course Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in	Z ch a student meets ent of professional Z ch German without	2 n a simple way 2 s either at school language. 2 great difficulties
Aim: Understanding cleabout familiar topics. Res 2046079 Mapped to the level of Cor in his/her free time at 2046083 Mapped to the level of Cor and active participation	German - Lower Intermediate Course arly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking about adding and comprehension of simple texts. Improvement of professional language. German - Lower Intermediate Course common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts. Improveme German - Advanced Course Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compre	Z ch a student meets ent of professional Z ch German without	2 n a simple way 2 s either at school language. 2 great difficulties
Aim: Understanding cleabout familiar topics. Res 2046079 Mapped to the level of Cor in his/her free time at 2046083 Mapped to the level of Cor and active participation	German - Lower Intermediate Course arly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking about ading and comprehension of simple texts. Improvement of professional language. German - Lower Intermediate Course common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts. Improvement German - Advanced Course common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compress from student's field of studies without difficulties. Grammar structures on advanced level.	Z ch a student meets ent of professional Z n German without ehension of popula	2 n a simple way 2 s either at school language. 2 great difficulties ar-scientific and
Aim: Understanding cleabout familiar topics. Res 2046079 Mapped to the level of Cor in his/her free time at 2046083 Mapped to the level of Cor and active participation	German - Lower Intermediate Course arly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking about adding and comprehension of simple texts. Improvement of professional language. German - Lower Intermediate Course common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts. Improveme German - Advanced Course Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compre	Z ch a student meets ent of professional Z ch German without	2 n a simple way 2 s either at school language. 2 great difficulties
Aim: Understanding clea about familiar topics. Ref 2046079 Mapped to the level of Cor in his/her free time at 2046083 Mapped to the level of Cand active participation scientific articles or text 2046082	German - Lower Intermediate Course arly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking about ading and comprehension of simple texts. Improvement of professional language. German - Lower Intermediate Course common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts. Improvement German - Advanced Course common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compress from student's field of studies without difficulties. Grammar structures on advanced level.	Z ch a student meets ent of professional Z n German without ehension of popula	2 n a simple way 2 s either at school language. 2 great difficulties ar-scientific and
Aim: Understanding clea about familiar topics. Ref 2046079 Mapped to the level of Cor in his/her free time at 2046083 Mapped to the level of Cand active participation scientific articles or text 2046082 Comprehension of spokensions.	German - Lower Intermediate Course arly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking about adding and comprehension of simple texts. Improvement of professional language. German - Lower Intermediate Course common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts. Improvement German - Advanced Course common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compress from student's field of studies without difficulties. Grammar structures on advanced level. German - Advanced Course	Z ch a student meets ent of professional Z n German without ehension of population in discussions.	2 n a simple way 2 s either at school language. 2 great difficulties ar-scientific and
Aim: Understanding clea about familiar topics. Ref 2046079 Mapped to the level of Cor in his/her free time at 2046083 Mapped to the level of Corner and active participation scientific articles or text 2046082 Comprehension of spokopinions. Written skills.	German - Lower Intermediate Course arly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking aborating and comprehension of simple texts. Improvement of professional language. German - Lower Intermediate Course common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts, Improvement German - Advanced Course common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compress from student's field of studies without difficulties. Grammar structures on advanced level. German - Advanced Course en language as well as lectures in German on topics familiar to the student. Communication with native speakers, participating ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and texts.	Z ch a student meets of professional Z n German without ehension of population in discussions. echnical articles.	2 n a simple way 2 s either at school language. 2 great difficulties ar-scientific and 2 Expressing
Aim: Understanding clea about familiar topics. Ref 2046079 Mapped to the level of Cor in his/her free time at 2046083 Mapped to the level of Corner and active participation scientific articles or text 2046082 Comprehension of spok opinions. Written skills. At 2046081	German - Lower Intermediate Course arly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking about adding and comprehension of simple texts. Improvement of professional language. German - Lower Intermediate Course common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts, Improvement German - Advanced Course common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compress from student's field of studies without difficulties. Grammar structures on advanced level. German - Advanced Course en language as well as lectures in German on topics familiar to the student. Communication with native speakers, participating the write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and te German - Upper Intermediate Course	Z ch a student meets of professional Z n German without ehension of population in discussions. echnical articles.	2 n a simple way 2 s either at school language. 2 great difficulties ar-scientific and 2 Expressing
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2046077	German - Beginners	Z	2
Mapped to the level	Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understandin	ig and use of basic	expressions of
general scientific teri	minology (professional language).		
2046161	Presentations in English	Z	2
Preparing students to	present in English on technical topics, with a possible co-operation with specialized departments.	•	
2046166	Presentations in Czech	Z	2
Preparing students to	o give presentations in English on technical topics, with a possible co-operation with specialized departments.	1	1
2046162	Presentations in German	Z	2
	enting technical topics in German, possibly in cooperation with specialized departments.	_	_
2046164	Presentations in Russian	Z	2
	enting technical topics in Russian, possibly in cooperation with specialized departments.	_	_
2046163	Presentations in French language	Z	2
	enting technical topics in French, possibly in cooperation with specialized departments.	_	_
2046165	Presentations in Spanish	Z	2
	enting technical topics in Spanish, possibly in cooperation with specialized departments.		2
2046137	Russian - Lower Intermediate Course	7	2
	y what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. V	. –	_
_	comprehension of simple texts. Improvement of professional language.	viiling in a simple v	ay about familia
2046138		Z	2
	Russian - Lower Intermediate Course of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a s	_	_
	or Common European Framework of Reference. Az Onderstanding clearly what is spoken about everyday situations which a s ng about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of pro		
2046141	Russian - Advanced	Z	2
	poken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation of the student of the stu		. Expressing
	ls. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and		
2046142	Russian - Advanced	Z	2
2046142 Mapped to the level	Russian - Advanced of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian or	Z n topics familiar to t	ne student.
2046142 Mapped to the level of Communication with	Russian - Advanced of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian or native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading	Z n topics familiar to t	ne student.
2046142 Mapped to the level of Communication with currant issues and property of the contract of the contract is the contract of the contract	Russian - Advanced of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian or	Z n topics familiar to t	ne student.
2046142 Mapped to the level of Communication with currant issues and property of the contract of the contract is the contract of the contract	Russian - Advanced of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian or native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading	Z n topics familiar to t	ne student.
2046142 Mapped to the level of Communication with currant issues and potential	Russian - Advanced of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian or native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading opular scientific and technical articles.	Z n topics familiar to t and understanding	ne student. texts concerning
2046142 Mapped to the level of Communication with currant issues and pour 2046140 Mapped to the level of	Russian - Advanced of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian or native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading opular scientific and technical articles. Russian - Upper Intermediate	Z n topics familiar to t and understanding Z t meets at work, at	ne student. texts concerning 2 school, during
2046142 Mapped to the level of Communication with currant issues and pour 2046140 Mapped to the level of	Russian - Advanced of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian or native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading opular scientific and technical articles. Russian - Upper Intermediate of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student	Z n topics familiar to t and understanding Z t meets at work, at	ne student. texts concerning 2 school, during
2046142 Mapped to the level of Communication with currant issues and poly 2046140 Mapped to the level of free time, and talking 2046139	Russian - Advanced of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian or native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading opular scientific and technical articles. Russian - Upper Intermediate of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and unders	Z n topics familiar to t and understanding Z t meets at work, at standing general an Z	texts concerning 2 school, during d technical texts 2
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List of courses of this pass:

Code	Name of the course	Completion	Credits		
2011009	Mathematics III	Z,ZK	5		
	An introductory course in ordinary differential equation and infinite series.		·		
2011021	Constructive Geometry	Z,ZK	6		
	The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.				
2011049	Numerical Mathematics	Z,ZK	4		
Numerical solution	Numerical solution of systems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical solution of ordinary differential				
	equations, initial and boundary value problems. Numerical solution of basic linear partial differential equations by finite difference	method.			

2011056 Mathematics I Z,ZK 8 In the course, greater emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connections between concepts. Students will also get to know the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: eigennumbers and eigenvectors of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions. 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. 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. Algorithmization and Programming Fundamentals 2012035 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. 2012037 **Computer Graphics** 2016007 Mathematics I. - Seminar Ζ 2 201A009 Mathematics III.A ZK 2 201A021 Constructive Geometry A ZK 3 The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations 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 201A062 Mathematics II.A ZK Open and closed set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differential operators div (divergence) and curl (rotation). Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, Fubini theorem. Transformation of integrals to polar, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green's theorem. A potential vector field, independence of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector field through a surface. The Gauss-Ostrogradskij theorem. 2021025 Physics II. 7.7K 4 Faraday's law of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic waves. Interaction of radiation with matter. Photoelectric effect. Wave-particle 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. 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. Ζ 2026016 Physics - Seminar 2 The subject is mainly meant for high-school students for repetition of high-school physics. 202A025 7K 2 Physics II.A Faraday's law of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic waves. Interaction of radiation with matter. Photoelectric effect. Wave-particle 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. Physics I. 2024041 7K 3 Kinematics and dynamics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic properties of bodies. Oscillations, waves. Fluid mechanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Conductors, semiconductors, insulators. Magnetic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect measurements, regression, measurements of 11 various experiments related to the lectures. 2041061 English-Bachelor Exam 2 Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. 2041062 German - Bachelor Exam / FME 7.7K 2 Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. 2041063 French - Bachelor Exam /FME Z,ZK 2 Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. 2041064 Spanish - Bachelor Exam / FME 7.7K 2 Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. 2041065 Russian - Bachelor Exam / FME 2 Z,ZK Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Ζ 2046068 English - Beginners 2 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional language). A1 2046069 English - Beginners Mapped to the Common European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional language).

2046070 Aim: Understandin	English - Lower Intermediate g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Z Writing in a simple	2 way about
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.		-
2046071	English - Lower Intermediate	Z	2
	mmon European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which a s time and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improveme		
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
	mmon European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional Engli		
terminology. Compr	rehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermedi knowledge.	ate level. Broadenii	ng grammar
2046074	English - Advanced	Z	2
The aim: compreh	nension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Written	n and oral skills on	advanced
level. Ability to wri	te a summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's field Grammar structures on advanced level. B1 - B2.	of studies without	difficulties.
2046075	English - Advanced	7	2
	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		
	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.		
2046076	German - Beginners	Z	2
Basic vocabulary of	f everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profession the Common European Framework of Reference for Languages A1.	nal language) It cor	responds to
2046077	German - Beginners	7	2
	el Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding an	. – .	
	general scientific terminology (professional language).		
2046078	German - Lower Intermediate Course	Z	2
Aim: Understandin	g clearly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking about	them. Writing in a	simple way
	about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046079	German - Lower Intermediate Course	Z	2
	I of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a 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	to describe experi	
	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.	·	
2046081	German - Upper Intermediate Course	Z	2
	el 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 understanding	ng general and tec	
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
	of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in G		
and active participa	ation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehe	nsion of popular-so	cientific and
	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.		
2046084	French - Beginners	Z	2
Understanding clea	Irrly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing topics. Reading and comprehension of simple texts. Improvement of professional language.	in a simple way at	oout familiar
2046085	French - Beginners' Course	Z	2
	el of Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which a		
	he and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement		
2046086	French - Lower Intermediate Course	Z	2
Understanding clea	irly 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 at	oout familiar
	topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046087	French - Lower Intermediate Course	Z	. 2
	el 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	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.	•	
2046089	French - Upper Intermediate	Z	2
	el 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 understanding		
2046090	French - Advanced	Z Z	2
· ·	of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participatior Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a		-
2046091	French - Advanced	Z	2
	evel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on to		
	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	=	,

2046096	Charles Deginners	Z	2
Allii.Onderstandii	Spanish - Beginners g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	_	_
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046097	Spanish - Beginners	Z	2
Mapped to the C	ommon European Framework of Reference Level A1. Aim: Understanding clearly what is spoken about everyday situations which a s	student meets at so	hool or in
his/her free tir	ne and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	of professional lan	guage.
2046098	Spanish - Lower Intermediate	Z	2
Understanding cle	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 at	out familiar
00.40000	topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046099	Spanish - Lower Intermediate	Z	2
	el of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a studer and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of p		
2046117	Czech -Advanced	7	2
	CZECTT - Advanced spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in dis	∠ cussions Expressir	
	en skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to		.g opoo.
2046118	Czech -Advanced	Z	2
	of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czec	n ch without great diff	iculties 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 comprehens	ion of popular-scie	ntific and
	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.		
2046119	Czech Language for Beginners I.	Z	2
	abulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p	rofessional langua	
2046120	Czech Language for Beginners II.	Z	2
Mapped to the Cor	nmon European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding	g and use of basic of	expressions
0040405	of general scientific terminology (professional language).	-	0
2046125	Czech Lower Intermediate Czech Lower Intermediate	Z	2
Aim: Understandin	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	whiting in a simple	way about
2046126	Czech Lower Intermediate	7	2
	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	. – .	
7 3.143.344.14.1	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		ay abbat
2046127	Czech - Upper Intermediate	Z	2
1	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
	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	-	
terminology. Cor	nprehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on interm	ediate level. Broad	ening the
0040405	knowledge technical language.	7	
2046135	Russian - Beginners	Z	2
	abulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p		
	Puggion Paginnara	7	
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2046163	Presentations in French language	Z	2
	Preparation for presenting technical topics in French, possibly in cooperation with specialized departments.	_	
2046164	Presentations in Russian Preparation for presenting technical topics in Russian, possibly in cooperation with specialized departments.	Z	2
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 departments		_
2131002	Engineering Design II	Z,ZK	4
Principles of ISO G	PS (Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface	texture, geometrica	al tolerance,
dimensional loop	ps, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice the	ir knowledge from	lectures.
2131026	Machine Elements and Mechanisms II	ZK	3
Preliminary design,	design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, and fittings.	pipelines and their	accessories
2131512	Machine Elements and Mechanisms I.	Z,ZK	6
Joints and joining e	lements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, ke	ys). Mechanical tra	ansmissions
(belt, chain, friction	on, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded	d connecting bolts,	clamped,
pressed, splined an	d 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 in	dispensable
	seminar work.		
2133013	Engineering Design III.	Z	2
	Design of assembly unit (draft drawing, detail drawing, assembly drawing, technical report)		
2133014	Engineering Design IV.	Z	2
2133025	Design	Z	4
Design	, design calculations and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft coupli	ings and clutches.	
2141504	Electric Circuits and Electronics	Z,ZK	4
Introduction into th	eory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of e	energy. El. Power a	nd Energy.
Introduction into	electronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilize	r, power control, op	erational
	amplifier). Analogue and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, micropro	cessor.	
2141505	Electrical machines and drives	Z,ZK	4
AC el. curcuits. Ele	ctrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transf	ormer, principle, co	onstruction,
3-phase transforr	mer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-	torque characteris	tic, speed
control. Synchronol	us machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque character	istic. Low-voltage i	nstruments.
	Low-voltage distribution system.		
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		
of nuclear	reactors. Fuel cycle. Reactor radiation, detection and quantification, determination of radiation doses. Problems of nuclear safety and	technical provisio	ns.
2151090	Industry power and heating plant	Z,ZK	5
2151117	Design of Power Facilities	Z,ZK	5
2151118	Distributed Energy	Z,ZK	5
21511158	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 various conditions.	-	
	npressors. Accessories of a compressor stations and plants. Economical and ecological problems of a compressed air production are	-	gerating
2151554	Thermal Turbines		5
		Z,ZK	
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
2153091	Presentation of Project	Z	4
2153707	Project I.	Z	5
2153985	Bachelor Thesis	Z	5
2181026	Momentum, Mass and Heat Transfer	Z,ZK	5
	MOMENTUM, MASS and Heat Transfer rransport 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 thei		
unic distributions III	systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.	mai radiation. Wull	.component
2181502	Hydromechanical Equipment	Z,ZK	5
	ind basic calculations of following equipment: pipes and pipe networks, packed and bubble columns, filters, settlers, centrifuges and c		
3 / 1	equipment, silos and conveyors, crushers and mills, granulators, extruders, injection and blow moulding machines, rolls and cale	-	, g

2181507	Diffusion separation equipment	Z,ZK	5
	ment for diffusion separation processes are giving a basic knowledge of processes and equipments where gas or liquid mixture is be		
of physical-chemi	cal equilibriums or on the basis of mass transfer mechanisms. They are used for concentrating of products from dilute solutions or in	turn for purification	n of diluted
0404500	gasses or liquid solutions.	7 714	
2181508	Heat transfer equipments	Z,ZK	5
Fundamentals of th	ermodynamics and conductive and convective heat transfer. Enthalpy balancing. Technical thermodynamics and basic thermodynamic	cycles. Functional	description,
2492040	mechanical design, thermal and hydraulic design of a heat exchangers, evaporators and dryers.	KZ	2
2182019	Chemistry y from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties	l	3
	n, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biocher		-
pridos oquinorian	oriented upon the material properties measurement.		practice is
2182091	Project	KZ	2
	Absolvent se seznámí se základy oboru Procesní technika.	1	_
2183091	Project Presentation	Z	4
_,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Preparation and presentation of a given project theme.	_	
2183707	Project I.	Z	5
'	Project, dimensioning and designing solution of basic elements for process technology.	ı	ı
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 i	s applied acquired	knowledge
	from previous study periods.		
2311101	Mechanics I.	Z,ZK	4
Mechanics I deals	with the basic concepts of statics. There are described the methods of solution of equilibrium of particles and rigid bodies and their sys	stems with and with	hout friction.
	There are introduced the methods of description of position and motion of particles and rigid bodies.		,
2311102	Mechanics II.	Z,ZK	4
	and of rigid bodies. Transformation matrix. Kinematics of concurrent movements. Motion: translation, rotation, general planar motion, s	•	
general spatial mot	ion. Composition of mechanisms. Basic planar mechanisms. Analytical methods in kinematics of mechanisms - Trigonometric and vectors and vectors and vectors and vectors are also as a second second second second second sec	•	cal methods
0004000	in kinematics. Basic theory of gearing. Transmition mechanisms with geers. Strutting and seezing in mechanisms. Cable mechanisms with geers.		
2321039	Materials Science II.	Z,ZK	4
Fundamentals of m	netallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and the technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of material technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of material technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of material technical iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and the iron-carbon alloys are transformations.		processing,
2322029	Materials Science I.	KZ	3
	IVIALETIALS SCIEFICE 1. ent state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, defor	l	-
	erials, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, in	-	
2362091	Project	KZ	2
	•		
7363001	Droiget Drecentation	l 7	1
2363091	Project Presentation	7 7V	4
2371047	Automatic Control	Z,ZK	5
2371047 Automatic controll	Automatic Control lers are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automat	Z,ZK ic control theory a	5 nd practice
2371047 Automatic controll like transfer function	Automatic Control lers are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automatins, open versus closed loop control, design of controllers and frequency based analysis of control systems. The course also concentra	Z,ZK ic control theory a tes on logic contro	5 nd practice I and control
2371047 Automatic controll like transfer function	Automatic Control lers are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automat	Z,ZK ic control theory a tes on logic contro	5 nd practice I and control
2371047 Automatic controll like transfer function	Automatic Control lers are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automatins, open versus closed loop control, design of controllers and frequency based analysis of control systems. The course also concentrate logic controllers. Some seminaries are arranged in laboratories where practical skills and control engineering methods are trained.	Z,ZK ic control theory a tes on logic contro	5 nd practice I and control
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2371047 Automatic controll like transfer function via programmabl 2372041 The course introduce	Automatic Control lers are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automatins, open versus closed loop control, design of controllers and frequency based analysis of control systems. The course also concentrate 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. Computer Support for Study	Z,ZK ic control theory at tes on logic contro Students begin to KZ he use of compute	5 nd practice I and control work with 3 ers. Students
2371047 Automatic controll like transfer function via programmabl 2372041 The course introduce	Automatic Control lers are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automatins, open versus closed loop control, design of controllers and frequency based analysis of control systems. The course also concentrate 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. Computer Support for Study ces students into creating technical and professional documents on computers or Web and into realizing technical computations with the state of th	Z,ZK ic control theory at tes on logic contro Students begin to KZ he use of compute	5 nd practice I and control work with 3 ers. Students
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