#### Study plan

### Name of study plan: 06 40 45 48 BSTR 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: 276

Elective courses credits: -36 Sum of credits in the plan: 240 Note on the plan: první pokus

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 199

The role of the block: P

Code of the group: 12B-KMENK TZI STR

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

Credits in the group: 156

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2371047	Automatic Control  Milan Hofreiter, R žena Petrová, Tomáš Vyhlídal, Jaromír Fišer Tomáš  Vyhlídal Tomáš Vyhlídal (Gar.)	Z,ZK	5	3P+15C+05L	*	Р
2182019	Chemistry Radek Šulc, Martin Dostál, Vojt ch B lohlav, Stanislav Solna , Jan Sko ilas Radek Šulc Radek Šulc (Gar.)	KZ	3	2P+1C	1	Р
2131512	Machine Elements and Mechanisms I. František Lopot	Z,ZK	6	3P+2C	*	Р
2131026	Machine Elements and Mechanisms II  Eliška Cézová, Zden k ešpíro, Martin Dub, Jan Flek, Ji í Houkal, Jan  Kanaval, František Lopot, Karel Petr František Lopot František Lopot (Gar.)	ZK	3	3P+0C	*	Р
2141504	Electric Circuits and Electronics Stanislava Papežová, Jan Chyský, Jaroslav Novák, Lukáš Novák <b>Zuzana</b> Sedlecká Jan Chyský (Gar.)	Z,ZK	4	2P+08C+1.4L	*	Р
2141505	Electrical machines and drives Jan Chyský, Jaroslav Novák, Lukáš Novák <b>Jaroslav Novák</b> Jaroslav Novák (Gar.)	Z,ZK	4	2P+08C+14L	*	Р
2021041	Physics I.	Z,ZK	7	4P+1L	*	Р
2021025	Physics II.	Z,ZK	4	1P+2L	3	Р
2133025	Design František Lopot František Lopot (Gar.)	Z	4	0P+4C	*	Р
2011021	Constructive Geometry Ivana Linkeová	Z,ZK	6	3P+2C	*	Р
2381054	Management and Economics of the Enterprise Theodor Beran, Št pánka Uli ná, Vladimír Brdek, Ladislav Vaniš, Petr Žemli ka Theodor Beran Theodor Beran (Gar.)	Z,ZK	4	2P+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
2011062	Matematika II. Radka Keslerová	Z,ZK	8	4P+4C	*	Р
2011009	Mathematics III Radka Keslerová, Ji í Holman, Gejza Dohnal, Marta ertíková, Vladimír Hric, Jan Valášek, Lud k Beneš, Tomáš Bodnár, Tomáš Neustupa, Stanislav Kra mar Stanislav Kra mar (Gar.)	Z,ZK	5	2P+2C	*	Р

2311101	Mechanics I. 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
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
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.)	KZ	3	2P+1L	2	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
2011049	Numerical Mathematics Radka Keslerová, Ji í Holman, Marta ertíková, Vladimír Hric, Petr Louda, Lukáš Hájek, Jan Valášek, Lud k Beneš, Tomáš Bodnár, Petr Svá ek Petr Svá ek (Gar.)	Z,ZK	4	2P+2C	4	Р
2012037	Computer Graphics Marta Hlavová, Ji í Holman, Nikola Pajerová, Martin Hanek, Jan Karel, Ivana Linkeová, Jaroslav Cibulka <b>Ivana Linkeová</b> Ivana Linkeová (Gar.)	KZ	3	1P+1C	*	Р
2372041	Computer Support for Study Vladimír Hlavá	KZ	3	1P+1C	*	Р
2181026	Momentum, Mass and Heat Transfer Martin Dostál, Vojt ch B lohlav, Stanislav Solna, Jan Sko ilas, Tomáš Jirout, Adam Krupica, Ji í Moravec Tomáš Jirout Tomáš Jirout (Gar.)	Z,ZK	5	3P+1C	*	Р
2131002	Engineering Design II Eliška Cézová, Martin Dub, Jan Flek, Jan Kanaval, František Lopot, Karel Petr, Martin Havlí ek, Jan Hoidekr, Roman Uhlí Karel Petr Karel Petr (Gar.)	Z,ZK	4	2P+3C	2	Р
2133013	Engineering Design III.  Jan Kanaval, František Lopot, Jan Hoidekr, David Skalický, Roman Uhlí Jan Kanaval Jan Kanaval (Gar.)	Z	2	0P+2C	Z	Р
2133014	Engineering Design IV. František Lopot František Lopot (Gar.)	Z	2	0P+2C	L	Р
2372083	Measurement in Engineering  Martin Novák, Vladimír Hlavá Martin Novák Martin Novák (Gar.)	KZ	3	1P+0C+2L	*	Р
K331068	Technology I	Z,ZK	5	16B	*	Р
K341014	Technology II.	Z,ZK	5	8KP+8KC	*	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.)	KZ	4	1P+2C	*	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=12B-KMENK TZI STR Name=01 2012 souhrn skupin 12B\*KiP-KMEN pro i od 1 do 6

2371047 Automatic Control Z,ZK 5
Automatic controllers are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automatic control theory and practice like transfer functions, open versus closed loop control, design of controllers and frequency based analysis of control systems. The course also concentrates on logic control and control

like transfer functions, open versus closed loop control, design of controllers and frequency based analysis of control systems. The course also concentrates on logic control and control via programmable logic controllers. Some seminaries are arranged in laboratories where practical skills and control engineering methods are trained. Students begin to work with MATLAB software as a common platform of control engineers.

2182019 | Chemistry | KZ | 3

General chemistry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties of matter, thermodynamics, phase equilibrium, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochemistry. Laboratory practice is oriented upon the material properties measurement.

2131512 Machine Elements and Mechanisms I. Z,ZK 6

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

2131026 Machine Elements and Mechanisms II

Preliminary design, design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, pipelines and their accessories

and fittings.

2141504 Electric Circuits and Electronics Z.ZK 4

2141504 | Electric Circuits and Electronics | Z,ZK | 4 Introduction into theory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of energy. El. Power and Energy. Introduction into electronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, microprocessor.

2141505 Electrical machines and drives Z,ZK 4

AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transformer, principle, construction, 3-phase transformer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-torque characteristic, speed control. Synchronous machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characteristic. Low-voltage instruments. Low-voltage distribution system.

2021041	Physics I	Z,ZK	7
	Physics I.  namics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elast	1 '	· -
•	anics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. C		
	ic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and in		
measurements of	11 various experiments related to the lectures.		
2021025	Physics II.	Z,ZK	4
Faraday's law of ele	ectromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties o	f electromagnetic w	aves. Interactio
of radiation with ma	atter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom	and periodic syster	m of elements.
Spectra, x-rays, ;la	ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6	experiments related	d to the lecture
2133025	Design	Z	4
Design, design cal	culations and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft couplings and	d clutches.	
2011021	Constructive Geometry	Z,ZK	6
The subject is focu	sed on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.	<u> </u>	
2381054	Management and Economics of the Enterprise	Z,ZK	4
The subject is inter	nded to teach the students of the Faculty of Mechanical Engineering the basic economic starting points necessary for technical reasonable to teach the students of the Faculty of Mechanical Engineering the basic economic starting points necessary for technical reasonable to the students of the Faculty of Mechanical Engineering the basic economic starting points necessary for technical reasonable to the students of the Faculty of Mechanical Engineering the basic economic starting points necessary for technical reasonable to the students of the Faculty of Mechanical Engineering the basic economic starting points necessary for technical reasonable to the students of the students of the starting points necessary for the starting points are starting to the starting points of the starting points are starting to the starting points and the starting points are starting to the starting points and the starting points are starting to the starting points and the starting points are starting to the starting points and the starting points are starting to the starting points and the starting points are starting to the starting points and the starting points are starting to the starting points and the starting points are starting points and the starting points are starting points and the starting points are starting points.	soning and to help t	hem understar
the basic relations	hips between economic quantities costs - revenues, expenses - incomes and other basic economic terms. The goal is for the auc	dience to be able to	communicate
	organizations. every product or service is valued at a selling price and therefore it is necessary to understand the simple costing		=
	ounter reports and should understand the basic structure of financial statements. As a future manager, he will compile and appro	• •	_
_	ney will learn basic managerial functions and their content. Furthermore, they will learn how to use network analysis in project managerial functions are their content.	anagement. For dec	cision-making
	learn the applications of multi-criteria decision-making. The basics of marketing and strategic management will be introduced.		
2011056	Mathematics I	Z,ZK	8
	tter emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and conne		•
-	v the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic are	as: eigennumbers a	and eigenvecto
	polynomial, integral as a limit function, integration of some special functions.		
2011062	Matematika II.	Z,ZK	8
	set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differ	· · · · · · · · · · · · · · · · · · ·	
	Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) inte	-	
	r, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and G		-
	e of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vi	ector field through a	a surrace. The
Gauss-Ostrograds	· .	7.71	
2011009	Mathematics III	Z,ZK	5
	urse in ordinary differential equation and infinite series.		
2311101	Mechanics I.	Z,ZK	4
	with the basic concepts of statics. There are described the methods of solution of equilibrium of particles and rigid bodies and the	ir systems with and	d without friction
	ed the methods of description of position and motion of particles and rigid bodies.		
2311102	Mechanics II.	Z,ZK	4
	t and of rigid bodies. Transformation matrix. Kinematics of concurrent movements. Motion: translation, rotation, general planar moti	· ·	
	tion. Composition of mechanisms. Basic planar mechanisms. Analytical methods in kinematics of mechanisms - Trigonometric and	i vector method. Gra	apnicai metnoc
	c theory of gearing. Transmition mechanisms with geers. Strutting and seezing in mechanisms. Cable mechanisms.	1.7	
2322029	Materials Science I.	KZ	3
	nt state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, de	=	
	ls, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations,	1	
2321039	Materials Science II.	Z,ZK	4
	netallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal a	and thermo-mechan	nical processing
	on alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materials.		
2011049	Numerical Mathematics	Z,ZK	4
	of systems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical solution of nonlinear algebraic equations.	erical solution of ord	dinary differenti
	nd boundary value problems. Numerical solution of basic linear partial differential equations by finite difference method.	1	
2012037	Computer Graphics	KZ	3
2372041	Computer Support for Study	KZ	3
The course introdu	ices students into creating technical and professional documents on computers or Web and into realizing technical computations v	with the use of com-	puters. Studen
gain practical skills	by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical	al-based WWW pag	ge.
2181026	Momentum, Mass and Heat Transfer	Z,ZK	5
Fundamentals of ti	ransport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechan	ical energy equation	n. Residence
time distributions ir	n continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and	d thermal radiation.	Multicompone
systems. Mass trar	nsfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.		
2131002	Engineering Design II	Z,ZK	4
Principles of ISO G	GPS (Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, sur	face texture, geome	etrical toleranc
	tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice th	eir knowledge from	n lectures.
· ·	Engineering Design III.	Z	2
dimensional loops,			
dimensional loops, 2133013	y unit (draft drawing, detail drawing, assembly drawing, technical report)		2
dimensional loops, 2133013 Design of assembl		Z	
dimensional loops, 2133013 Design of assembl 2133014	Engineering Design IV.		
dimensional loops, 2133013 Design of assembl 2133014 2372083	Engineering Design IV.  Measurement in Engineering	KZ	3
dimensional loops, 2133013 Design of assembl 2133014 2372083 Overview of senso	Engineering Design IV.	KZ	3
dimensional loops, 2133013 Design of assembl 2133014 2372083 Overview of senso instruments.	Engineering Design IV.  Measurement in Engineering r principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration ar	KZ nd verification of me	3 easurement
dimensional loops, 2133013 Design of assembl 2133014 2372083 Overview of senso instruments. K331068	Engineering Design IV.  Measurement in Engineering or principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration are  Technology I	KZ and verification of me	3 easurement 5
dimensional loops, 2133013 Design of assembl 2133014 2372083 Overview of senso instruments. K331068 Foundry properties	Engineering Design IV.  Measurement in Engineering  r principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration ar  Technology I  s of metals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of	KZ and verification of me	3 easurement 5
dimensional loops, 2133013 Design of assembl 2133014 2372083 Overview of senso instruments. K331068 Foundry properties	Engineering Design IV.  Measurement in Engineering or principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration are  Technology I	KZ and verification of me	3 easurement

2012035	Algorithmization and Programming Fundamentals	KZ	4					
Programming in MATLA	B and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Ma	trices, vectors and	d operations.					
Writting M-script. Input a	and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. S	ystems of linear e	quations. Scripts					
and functions. Structure	of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. \$	Structures. Algorit	nmization of					
simple programs: minim	simple programs: minimum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of systems of linear equations.							
2153005	Fundamentals of Energy Conversions	7	1					

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

Code of the group: 12B\*K\*P-ZT12

Fundamentals of Law

Name of the group: 04 2012 kombinované ZT v po adí 12

Requirement credits in the group: In this group you have to gain 6 credits

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

Credits in the group: 6 Note on the group:

2383001

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
K333038	Fundamentals of Technology I.	Z	3	8B	*	Р

Characteristics of the courses of this group of Study Plan: Code=12B\*K\*P-ZT12 Name=04 2012 kombinované ZT v po adí 12

K333038 Fundamentals of Technology I. Z 3

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: 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

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2151165	Hydraulic and Pneumatic Machines	Z,ZK	5					
Classificiation and prir	Classificiation and principles of operation of hydraulic machines. Criterions of hydrodynamical similarity. Hydraulic systems. Differend types of pumps, construction, capacity control							
and operation in vario	us conditions. Theory of compression processes. Constructions, calculation, capacity control of compressors, operation with vi	arious gases. Refr	igerating					
compressors. Accesso	ories 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

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

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

STR a TZIS			
2041061	English-Bachelor Exam	Z,ZK	2
	non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff a report and an essay, to read technical texts, to master grammar at advanced level.	iculties, to take pa	rt in discussions
2041063	French - Bachelor Exam /FME	Z,ZK	2
	non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff a report and an essay, to read technical texts, to master grammar at advanced level.	iculties, to take pa	rt in discussions
2041062	German - Bachelor Exam / FME	Z,ZK	2
• • •	non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diffa a report and an essay, to read technical texts, to master grammar at advanced level.	iculties, to take pa	rt in discussions
2041065	Russian - Bachelor Exam / FME	Z,ZK	2
Mapped to the Comr	non 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 Comm	non 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

	0 1 7			
2372091	Project	KZ	2	
An individual project fro		•		
2362091	Project	KZ	2	
2152091	Deparmental Project	KZ	2	
2182091	Project	KZ	2	
Absolvent se seznámí se základy oboru Procesní technika.				

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

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

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

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

Credits in the group: 4

Note on the group:

2363091 nesepsán Student si vybere předmět příslušný oboru, který studuje

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2153091	Presentation of Project	Z	4	4B	*	PV
2363091	Project Presentation	Z	4	4B		PV
2373091	Project presentation	Z	4	4B	*	PV
2183091	Project Presentation 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	Z	4
2363091	Project Presentation	Z	4
2373091	Project presentation	Z	4

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 on a temporal web page.

2183091 Project Presentation Z 4
Preparation and presentation of a given project theme.

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

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

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

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

Credits in the group: 5

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

Ústav procesní a zpracovatelské techniky

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2183707	Project I. Radek Šulc, Lukáš Krátký <b>Lukáš Krátký</b> 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, dimensionin	g 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	nveyors, crushers and mills, granulators, extruders, injection and blow moulding machines, rolls and calenders.						

2151002 Nuclear Power Principles

Physical fundamentals of nuclear energy. Development and heat removal from core. Basic materials for nuclear reactors. Basic types of nuclear reactors. Review of advanced types of nuclear reactors. Fuel cycle. Reactor radiation, detection and quantification, determination of radiation doses. Problems of nuclear safety and technical provisions.

Z.ZK

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

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	KZ	5
2151702	Renewable Energy Sources	Z,ZK	5
2181508	Heat transfer equipments	Z,ZK	5

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

Name of the block: Elective courses

Minimal number of credits of the block: 32

The role of the block: V

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

Name of the group: 02 2012 ALFA volitelné pro STR

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

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

Credits in the group: 32

Note on the group: Předměty typu Alfa (A) nejsou u studijního programu B2341 Strojírenství povinné, avšak jsou

povinné u studiiního programu B2342 Teoretický základ stroiního inženýrství.

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

202A025	Physics II.A	ZK	2				
Faraday's law of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic waves. Interaction							
of radiation with matter.	Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom a	nd periodic syster	n of elements.				
Spectra, x-rays, ;laser. E	Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 e	xperiments related	d to the lectures.				
201A021	Constructive Geometry A	ZK	3				
The subject is focused of	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 alg	pebra, 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, be	oundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differe	ential operators div	v (divergence)				
and curl (rotation). Funct	ion given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integ	ral, Fubini theoren	n. Transformation				
of integrals to polar, cyli	ndrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Gr	een's theorem. A	potential vector				
field, independence of a	l line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a ve	ctor field through	a surface. The				
Gauss-Ostrogradskij the	Gauss-Ostrogradskij theorem.						
201A009	Mathematics III.A	ZK	2				
201A049	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

(=, ·)p.ouj = opo.uouj = ojo p.ou v.ouo v.ouo						
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

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

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

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

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

Credits in the group: 0

Note on the group:

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

	English - Upper Intermediate					
2046073	Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Ilona Šimice Ilona Šimice (Gar.)	Z	2	0P+2C	L	V
2046068	English - Beginners Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046069	English - Beginners Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Ilona Šimice	Z	2	0P+2C	L	V
2046126	Czech Lower Intermediate  Jaroslava Kommová	Z	2	0P+2C	L	V
2046125	Czech Lower Intermediate  Jaroslava Kommová	Z	2	0P+2C	Z	V
2046118	Czech -Advanced Jaroslava Kommová	Z	2	0P+2C	L	V
2046117	Czech -Advanced Jaroslava Kommová	Z	2	0P+2C	Z	V
2046127	Czech - Upper Intermediate  Jaroslava Kommová	Z	2	0P+2C	Z	V
2046128	Czech - Upper Intermediate  Jaroslava Kommová	Z	2	0P+2C	L	V
2046119	Czech Language for Beginners I.  Jaroslava Kommová	Z	2	0P+2C	Z	V
2046120	Czech Language for Beginners II.  Jaroslava Kommová	Z	2	0P+2C	L	V
2046086	French - Lower Intermediate Course Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046087	French - Lower Intermediate Course 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 Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046089	French - Upper Intermediate Michaela Schusová, 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 <b>Michaela Schusová</b> Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046085	French - Beginners´ Course Michaela Schusová, Dušana Jirovská <b>Michaela Schusová</b> 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 <b>Michaela</b> 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 <b>Michaela</b> 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	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 <b>Jaroslava Kommová</b> Jaroslava Kommová (Gar.)	Z	2	0P+2C	*	V
2046164	Presentations in Russian Dušana Jirovská	Z	2	0P+2C	*	V
2046163	Presentations in French language  Dušana Jirovská <b>Dušana Jirovská</b>	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 <b>Dušana Jirovská</b>	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 commun	cative skills in speaking on general topics and general technical topics.	<u> </u>	
2046156	English Conversation	Z	2
Improving commun	cative skills in speaking on general topics and general technical topics.		
2046071	English - Lower Intermediate	Z	2
Mapped to the Com	mon European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which	n a student meets	either at school
or at his/her free tin	ne and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improven	nent of profession	al language.
2046070	English - Lower Intermediate	Z	2
Aim: Understanding	clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	em. Writing in a si	mple way about
familiar topics. Rea	ding and comprehension of simple texts. Improvement of professional language. A1 - A2.		
2046074	English - Advanced	Z	2
The aim: comprehe	nsion 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
	a summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's fire	eld of studies with	out difficulties.
Grammar structure	s on advanced level. B1 - B2.		
2046075	English - Advanced	Z	2
Mapped to the Con	ımon European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in	English without gr	eat difficulties
	tion in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and compre	hension of popula	ar-scientific and
scientific articles or	texts from student's field of studies without difficulties. Grammar structures on advanced level.		
2046072	English - Upper Intermediate	Z	2
The aim is to extend	l language skills taking into consideration professional English and common professional terminology. Comprehension of standar	d English speech	and conversation
about topics of ever	yday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1.		
2046073	English - Upper Intermediate	Z	2
Mapped to the Com	ımon European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional Er	nglish and commo	n professional
terminology. Compr	ehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on interr	nediate level. Broa	adening grammar
knowledge.			
2046068	English - Beginners	Z	2
Aim: Basic vocabula	ary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (	professional langu	age). A1
2046069	English - Beginners	Z	2
Mapped to the Com	mon European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understan	nding and use of t	asic expressions
of general scientific	terminology (professional language).		

2046126			
Administration of the second second second	Czech Lower Intermediate	Z	2
-	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 sin	nple way abou
•	g and comprehension of simple texts. Improvement of professional language.		
2046125	Czech Lower Intermediate	Z _	. 2
_	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 sin	nple way abou
<u> </u>	g and comprehension of simple texts. Improvement of professional language.		
2046118	Czech -Advanced	Z	2
* *	Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Ca discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehen	_	
	tts from student's field of studies without difficulties. Grammar structures on advanced level.	ision of popular so	icritino aria
2046117	Czech -Advanced	7	2
	ken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in	. – .	<del>-</del>
	write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical a	•	3 -1 -
2046127	Czech - Upper Intermediate	Z	2
Jnderstanding standa	rd 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	one's opinions and plans. Reading and understanding general and technical texts.		
2046128	Czech - Upper Intermediate	Z	2
Mapped to the Comm	on European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional	Czech and comm	on profession
	ension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on inter	mediate level. Bro	adening the
nowledge technical la		, ,	
2046119	Czech Language for Beginners I.	Z	2
-	eryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profes		
2046120	Czech Language for Beginners II.	Z	. 2
	on European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understan	nding and use of ba	asic expressio
_	minology (professional language).		
2046086	French - Lower Intermediate Course	Z	2
	what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wr Imprehension of simple texts. Improvement of professional language.	iung in a simple w	ay about famil
-		7	
2046087	French - Lower Intermediate Course	Z	2
	Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which peaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement		
046091	French - Advanced	7	2
	Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on to	. – .	
• •	ative speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading ar	•	
	oular scientific and technical articles.	na anaonotanang	
2046090	French - Advanced	Z	2
	ken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participatio	. – .	
	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and te		
2046089	French - Upper Intermediate	Z	2
Mapped to the level of	Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar topics, that a students c	omes across at w	ork, at school,
luring free time, and f	alking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understa	anding general and	I technical tex
2046088	French - Upper Intermediate	Z	2
Inderstanding standa	rd 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
vents, briefly explain	one's opinions and plans. Reading and understanding general and technical texts.		
2046084	French - Beginners	Z	2
	what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wr	iting in a simple w	ay about famil
	emprehension of simple texts. Improvement of professional language.		
2046085	French - Beginners' Course	Z	2
	Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which		
	peaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement		
2146060	Indonesian Language Course for Exchange	Z	2
	anguage for Student Exchange Program to Indonesia		
2146061	Technical Indonesian - Course I.	Z	2
econd part of Indone	sian Language for Student Exchange Program to Indonesia		
			3
144062	Technical Indonesian - Course II.	Z,ZK	
144062 asic of Indonesian L	anguage for Student Exchange Program to Indonesia		
144062 asic of Indonesian L 046078	Inguage for Student Exchange Program to Indonesia German - Lower Intermediate Course	Z	2
144062 asic of Indonesian L 046078 im: Understanding c	anguage for Student Exchange Program to Indonesia German - Lower Intermediate Course early what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	Z	
144062 asic of Indonesian L 046078 im: Understanding cl amiliar topics. Readin	Inguage for Student Exchange Program to Indonesia  German - Lower Intermediate Course 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.	Z em. Writing in a sin	nple way abo
144062 asic of Indonesian L 046078 im: Understanding cl imiliar topics. Readin 046079	Inguage for Student Exchange Program to Indonesia  German - Lower Intermediate Course 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.  German - Lower Intermediate Course	Z em. Writing in a sin	nple way abo
144062 asic of Indonesian L 046078 im: Understanding cl miliar topics. Readin 046079 lapped to the level of	Inguage for Student Exchange Program to Indonesia  German - Lower Intermediate Course 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.  German - Lower Intermediate Course  Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which	Z em. Writing in a sin Z th a student meets	nple way abou
144062 lasic of Indonesian L 1046078 lim: Understanding cl amiliar topics. Readin 1046079 lapped to the level of r in his/her free time	German - Lower Intermediate Course 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.  German - Lower Intermediate Course Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement	Z em. Writing in a sin Z th a student meets	nple way abou  2 either at scholanguage.
1144062 asic of Indonesian L 1046078 im: Understanding cl amiliar topics. Readin 1046079 Itapped to the level of 1 in his/her free time 1046083	German - Lower Intermediate Course 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.  German - Lower Intermediate Course Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which and speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts. Improvement German - Advanced Course	Z ch a student meets ent of professional	2 either at scholanguage.
2144062 Basic of Indonesian L 2046078 Aim: Understanding cl amiliar topics. Readin 2046079 Mapped to the level of air in his/her free time 2046083 Mapped to the level of	German - Lower Intermediate Course 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.  German - Lower Intermediate Course Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which and 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	Z ch a student meets ent of professional Z ch German without	2 either at sch language. 2 great difficulti
2144062 Basic of Indonesian L 2046078 Aim: Understanding cl amiliar topics. Readin 2046079 Mapped to the level of ar in his/her free time 2046083 Mapped to the level of and active participatio	German - Lower Intermediate Course 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.  German - Lower Intermediate Course Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which and 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 comprehension of spoken German as well as lectures given in a discussion.	Z ch a student meets ent of professional Z ch German without	2 either at sch language. 2 great difficulti
2144062 Basic of Indonesian L 2046078 Amiliar topics. Readin 2046079 Mapped to the level of ar in his/her free time 2046083 Mapped to the level of active participatio cientific articles or te	German - Lower Intermediate Course 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.  German - Lower Intermediate Course Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which and 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 comprehension 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 either at sch language. 2 great difficulti
2144062 Basic of Indonesian L 2046078 Aim: Understanding of amiliar topics. Readin 2046079 Mapped to the level of or in his/her free time 2046083 Mapped to the level of and active participation occentific articles or te	German - Lower Intermediate Course 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.  German - Lower Intermediate Course Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which and 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 comprehension student's field of studies without difficulties. Grammar structures on advanced level.  German - Advanced Course	Z cm. Writing in a sin  Z ch a student meets cht of professional  Z n German without chension of popula	2 either at sch- language. 2 great difficulti ar-scientific ar
2144062 dasic of Indonesian L 2046078 dim: Understanding of amiliar topics. Readin 2046079 Mapped to the level of ar in his/her free time 2046083 Mapped to the level of active participatio cientific articles or te 2046082 Comprehension of spe	German - Lower Intermediate Course 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.  German - Lower Intermediate Course Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which and 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 comprehension of student's field of studies without difficulties. Grammar structures on advanced level.  German - Advanced Course  Oken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participation and comprehension of spoken German as well as lectures on advanced level.	Z cm. Writing in a sin  Z ch a student meets ent of professional  Z n German without chension of population in discussions.	2 either at sch- language. 2 great difficulti ar-scientific ar
2144062 basic of Indonesian L 2046078 him: Understanding of amiliar topics. Readin 2046079 Mapped to the level of a in his/her free time 2046083 Mapped to the level of and active participation cientific articles or te 2046082 Comprehension of spipinions. Written skills	German - Lower Intermediate Course 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.  German - Lower Intermediate Course Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which and 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 compretes from student's field of studies without difficulties. Grammar structures on advanced level.  German - Advanced Course sken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participatic 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 either at scholanguage. 2 great difficulti ar-scientific ar 2 Expressing
2144062 lasic of Indonesian L 2046078 lim: Understanding of amiliar topics. Readin 2046079 Mapped to the level of r in his/her free time 2046083 Mapped to the level of active participation cientific articles or te 2046082 Comprehension of spipinions. Written skills 2046081	German - Lower Intermediate Course 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.  German - Lower Intermediate Course Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which and 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 comprehension of student's field of studies without difficulties. Grammar structures on advanced level.  German - Advanced Course  Oken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participation and comprehension of spoken German as well as lectures on advanced level.	Z ch a student meets of professional Z n German without ehension of population in discussions. chinical articles.	either at scholanguage.  2 great difficulti ar-scientific ar  2 Expressing

2046080	German - Upper Intermediate Course	Z	2
	dard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. At	-	
<del>-</del>	in one's opinions and plans. Reading and understanding general and technical texts.	sility to dodoribo oxp	chonoco ana
2046076	German - Beginners	Z	2
	everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (prof		2
-		Z	2
2046077	German - Beginners	- 1	
	Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understandir minology (professional language).	ig and use of basic e	expressions of
_		7	0
2046161	Presentations in English	Z	2
	to present in English on technical topics, with a possible co-operation with specialized departments.		
2046166	Presentations in Czech	Z	2
	to give presentations in English on technical topics, with a possible co-operation with specialized departments.		
2046162	Presentations in German	Z	2
	enting technical topics in German, possibly in cooperation with specialized departments.		
2046164	Presentations in Russian	Z	2
Preparation for pres	enting technical topics in Russian, possibly in cooperation with specialized departments.		
2046163	Presentations in French language	Z	2
Preparation for pres	enting technical topics in French, possibly in cooperation with specialized departments.		
2046165	Presentations in Spanish	Z	2
Preparation for pres	enting technical topics in Spanish, possibly in cooperation with specialized departments.	,	
2046137	Russian - Lower Intermediate Course	Z	2
Understanding clea	ly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. V	Nriting in a simple w	ay about familia
topics. Reading and	comprehension of simple texts. Improvement of professional language.		
2046138	Russian - Lower Intermediate Course	Z	2
Mapped to the level	of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a	student meets at sch	nool or in his/he
free time and speak	ing about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of pro	ofessional language.	
2046141	Russian - Advanced	7	2
	spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, particip	ation in discussions	
	lls. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and		
2046142	Russian - Advanced	7	2
	of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian or	_	
	n native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading	•	
	opular scientific and technical articles.	· ·	`
2046140	Russian - Upper Intermediate	Z	2
	of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a studen		_
	g about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and unders		_
2046139	Russian - Upper Intermediate	7	2
	ard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. At		_
_	in one's opinions and plans. Reading and understanding general and technical texts.	Jility to describe exp	enences and
2046136		Z	2
	Russian - Beginners of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understar		
	terminology (professional language)	iding and use of bas	sic expressions
_		7	0
2046135	Russian - Beginners	Z	2
-	everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (prof		_
2046099	Spanish - Lower Intermediate	Z	2
	of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a s		ool or in his/hei
	ing about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of pro		
2046098	Spanish - Lower Intermediate	Z	2
	ly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. V	Nriting in a simple w	ay about familia
topics. Reading and	comprehension of simple texts. Improvement of professional language.		
2046096	Spanish - Beginners	Z	2
Aim:Understanding	clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	nem. Writing in a sim	ple way about
familiar topics. Read	ling and comprehension of simple texts. Improvement of professional language.		
2046097	Spanish - Beginners	Z	2
Mapped to the Com	mon European Framework of Reference Level A1. Aim: Understanding clearly what is spoken about everyday situations which	n a student meets at	school or in
his/her free time and	d speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	nt of professional lan	iguage.

## 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 relation	ons.	

2011049 **Numerical Mathematics** Z,ZK 4 Numerical solution of systems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical solution of ordinary differential equations, initial and boundary value problems. Numerical solution of basic linear partial differential equations by finite difference method. Mathematics I In the course, greater emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connections between concepts. Students will also get to know the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: eigennumbers and eigenvectors of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions. 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. 2012035 Algorithmization and Programming Fundamentals K7 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. Computer Graphics 2012037 K7 3 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 ZK Numerical Mathematics A 201A056 Mathematics I.A ZK Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable 201A062 7K Mathematics II.A 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. Physics II. Faraday's law of electromagnetic induction, Maxwell's equations, electromagnetic waves, Light, wave optics, geometrical optics. Quantum properties of electromagnetic waves, Interaction of radiation with matter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and periodic system of elements. 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. 2021041 Z,ZK Kinematics and dynamics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic properties of bodies. Oscillations, waves. Fluid mechanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Conductors, semiconductors, insulators. Magnetic field, Magnetic materials, Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect measurements, regression, measurements of 11 various experiments related to the lectures. 2026016 Physics - Seminar Ζ The subject is mainly meant for high-school students for repetition of high-school physics. 202A025 Physics II.A ZK 2 Faraday's law of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic waves. Interaction of radiation with matter. Photoelectric effect. Wave-particle 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. 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 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. 2041062 German - Bachelor Exam / FME Z,ZK 2 Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. 2041063 French - Bachelor Exam /FME 2 Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. 2041064 Spanish - Bachelor Exam / FME Z,ZK 2 Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. 2041065 Russian - Bachelor Exam / FME Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. 2046068 Ζ 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	Z	2
Mapped to the Co	mmon European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding of general scientific terminology (professional language).	and use of basic	expressions
2046070	English - Lower Intermediate	Z	2
Aim: Understandi	ng 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. A1 - A2.	Writing in a simple	way about
2046071	English - Lower Intermediate	Z	2
Mapped to the Co	ommon European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which a s	tudent meets eithe	er at school
	e time and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improvemen	nt of professional i	
2046072 The aim is to exter	English - Upper Intermediate  Indianguage skills taking into consideration professional English and common professional terminology. Comprehension of standard English and common professional terminology. Comprehension of standard English about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 -		2 conversation
2046072		Z	2
	English - Upper Intermediate common European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional English prehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate knowledge.	sh and common p	rofessional
2046074	English - Advanced	Z	2
The aim: compre	shension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Written rite 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.		
2046075	English - Advanced	Z	2
Mapped to the C and active partici	common European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in English and comprehen pation 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.	glish without great sion of popular-so	difficulties cientific and
2046076 Basic voo	German - Beginners cabulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (pr	Z ofessional langua	ge)
2046077 Mapped to the le	German - Beginners vel Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding and general scientific terminology (professional language).	Z d use of basic exp	2 ressions of
2046078	German - Lower Intermediate Course	7	2
	ng 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.	_	_
2040070		7	
2046079	German - Lower Intermediate Course	Z	2
	el of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a s		
	te time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvemen	t of professional is	
2046080 Understanding s	German - Upper Intermediate Course  tandard 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.	Z to describe experi	2 ences and
2046081	German - Upper Intermediate Course  vel of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students com-	Z es across at work	2
* *	and talking about these topics. Ability to describe experiences and events, explain one s opinions and plans. Reading and understanding		
2046082	German - Advanced Course	Z	2
Comprehension	of spoken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participation	n in discussions. E	xpressing
•	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a		
	German - Advanced Course  el of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in Ge pation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compreher scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.	=	
2046084	French - Beginners	Z	2
	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing topics. Reading and comprehension of simple texts. Improvement of professional language.	<del>-</del>	I
2046085	French - Beginners Course	Z	2
Mapped to the le	reflect - Beginners Course  vel of Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which a sme and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	student meets at s	chool or in
2046086	French - Lower Intermediate Course	Z	2
	parly 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.	<del>-</del>	ı
2046087	French - Lower Intermediate Course	Z	2
	vivel of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a s me and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement		
2046088 Understanding s	French - Upper Intermediate tandard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to	Z to describe experi	2 ences and
	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.		
2046089	French - Upper Intermediate	Z	2
	evel of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students come and talking about these topics. Ability to describe experiences and events, explain one so opinions and plans. Reading and understanding		
•	French - Advanced  n of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participation Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a		

		_				
2046091	French - Advanced	Z	2			
Mapped to the	level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on to	pics familiar to the	student.			
Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning						
currant issues and popular scientific and technical articles.						
2046096	Spanish - Beginners	7	2			
	·					
Aim:Understandir	ng clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	writing in a simple	way about			
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.					
2046097	Spanish - Beginners	Z	2			
Mapped to the C	Common European Framework of Reference Level A1. Aim: Understanding clearly what is spoken about everyday situations which a s	student meets at so	chool or in			
his/her free tin	ne and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	of professional lan	nguage.			
2046098	Spanish - Lower Intermediate	7	2			
	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	in a simple way al				
Oriderstanding clea		i iii a siiiipie way ai	bout iaiiiiiai			
	topics. Reading and comprehension of simple texts. Improvement of professional language.	_				
2046099	Spanish - Lower Intermediate	Z	2			
Mapped to the leve	el of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a studer	it meets at school	or in his/her			
free time a	and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of p	orofessional langua	age.			
2046117	Czech -Advanced	7	2			
	spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in dis-	russions Eynressi				
1		· ·	ng opinions.			
	en skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to	echnical articles.				
2046118	Czech -Advanced	Z	2			
Mapped to the leve	el of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czec	ch without great dif	ficulties and			
active participat	ion 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	entific and			
	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.					
2046119	Czech Language for Beginners I.	7	2			
		_				
	abulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p	rolessional langua	· ,			
2046120	Czech Language for Beginners II.	Z	2			
Mapped to the Cor	mmon European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understandinç	g and use of basic	expressions			
	of general scientific terminology (professional language).					
2046125	Czech Lower Intermediate	7	2			
	ng clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	_	. –			
Aim. Onderstandii		writing in a simple	way about			
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	_	1			
2046126	Czech Lower Intermediate	Z	2			
Aim: Understandir	ng clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Writing in a simple	way about			
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.					
2046127	Czech - Upper Intermediate	7	2			
	• • • • • • • • • • • • • • • • • • • •					
Understanding St	tandard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	to describe expen	ences and			
	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.	_	_			
2046128	Czech - Upper Intermediate	Z	2			
Mapped to the Cor	mmon European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional Cz	ech and common p	professional			
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	dening the			
	knowledge technical language.					
2046135	Russian - Beginners	7	2			
	abulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p	rofessional langua	. –			
2046136	Russian - Beginners	Z	2			
Mapped to the lev	el of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understanding	and use of basic e	expressions			
	of general scientific terminology (professional language)					
2046137	Russian - Lower Intermediate Course	Z	2			
	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	_				
Oriderstariding cice		in a simple way al	bout lamiliai			
00.10.100	topics. Reading and comprehension of simple texts. Improvement of professional language.	-				
2046138	Russian - Lower Intermediate Course	Z	2			
	el of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a studer					
free time a	and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of p	orofessional langua	age.			
2046139	Russian - Upper Intermediate	Z	2			
	tandard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	to describe experi				
3	events, briefly explain one so opinions and plans. Reading and understanding general and technical texts.					
0040440		7				
2046140	Russian - Upper Intermediate	Z	2			
1	vel of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student me		_			
free time, and talki	ing about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understandii	ng general and tec	hnical texts.			
	Russian - Advanced	Z	2			
2046141						
	of spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participatio	n in discussions. E				
Comprehension						
Comprehension opinions.	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a	and technical article	es.			
Comprehension opinions. 2046142	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a Russian - Advanced	and technical article	es.			
Comprehension opinions. 2046142 Mapped to the I	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a  Russian - Advanced level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to	and technical article  Z  ppics familiar to the	es. 2 student.			
Comprehension opinions. 2046142 Mapped to the I	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a Russian - Advanced level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to the native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding the speakers of the state of the sta	and technical article  Z  ppics familiar to the	es. 2 student.			
Comprehension opinions. 2046142 Mapped to the I	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a  Russian - Advanced level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to	and technical article  Z  ppics familiar to the nderstanding texts	es. 2 student.			
Comprehension opinions. 2046142 Mapped to the I	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a Russian - Advanced level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to the native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding the speakers of the state of the sta	and technical article  Z  ppics familiar to the	es. 2 student.			
Comprehension opinions.  2046142  Mapped to the I Communication wi	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a Russian - Advanced level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to the 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.	and technical article  Z  ppics familiar to the nderstanding texts	es.  2 estudent. econcerning			
Comprehension opinions.  2046142 Mapped to the I Communication wi  2046155	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a Russian - Advanced level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to the native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and uncurrant issues and popular scientific and technical articles.  English Conversation  Improving communicative skills in speaking on general topics and general technical topics.	and technical article  Z  ppics familiar to the nderstanding texts  Z	es.  2 estudent. concerning			
Comprehension opinions.  2046142  Mapped to the I Communication wi	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific at Russian - Advanced level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to the native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding currant issues and popular scientific and technical articles.  English Conversation  Improving communicative skills in speaking on general topics and general technical topics.  English Conversation	and technical article  Z  ppics familiar to the nderstanding texts	es.  2 estudent. econcerning			
Comprehension opinions. 2046142 Mapped to the I Communication wi 2046155 2046156	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a Russian - Advanced level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to the native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding currant issues and popular scientific and technical articles.  English Conversation  Improving communicative skills in speaking on general topics and general technical topics.  English Conversation  Improving communicative skills in speaking on general topics and general technical topics.	and technical article  Z  ppics familiar to the nderstanding texts  Z	es.  2 e student. e concerning  2			
Comprehension opinions.  2046142 Mapped to the I Communication wi  2046155	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific at Russian - Advanced level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to the native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding currant issues and popular scientific and technical articles.  English Conversation  Improving communicative skills in speaking on general topics and general technical topics.  English Conversation	and technical article  Z  ppics familiar to the nderstanding texts  Z	es.  2 estudent. concerning			

2046162	Presentations in German  Preparation for presenting technical topics in German, possibly in cooperation with specialized departments.	Z	2
2046163	Presentations in French language  Preparation for presenting technical topics in French, possibly in cooperation with specialized departments.	Z	2
2046164	Presentations in Russian	Z	2
2046165	Preparation for presenting technical topics in Russian, possibly in cooperation with specialized departments.  Presentations in Spanish	Z	2
2046466	Preparation for presenting technical topics in Spanish, possibly in cooperation with specialized departments.	7	
2046166	Presentations in Czech Preparing students to give presentations in English on technical topics, with a possible co-operation with specialized departm		2
2131002	Engineering Design II	Z,ZK	4
	PS (Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface ps, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice the	. •	
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
, ,	lements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, ke on, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloader	• /	
	on, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded nd key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple asser	0 ,	
	seminar work.		
2133013	Engineering Design III.	Z	2
2133014	Design of assembly unit (draft drawing, detail drawing, assembly drawing, technical report)	Z	2
2133014	Engineering Design IV.  Design	7	4
	n, design calculations and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft coupl	_	-
2141504	Electric Circuits and Electronics	Z,ZK	4
	neory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of	•	٠,
Introduction into	electronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilize amplifier). Analogue and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, micropro		perational
2141505	Electrical machines and drives	Z,ZK	4
	ectrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transi		onstruction,
	mer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed		
Control. Synchronol	us machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characte Low-voltage distribution system.	ristic. Low-voitage	instruments.
	· · · · · · · · · · · · · · · · · · ·		
2144062	Technical Indonesian - Course II.	Z,ZK	3
	Basic of Indonesian Language for Student Exchange Program to Indonesia		
2144062	Basic of Indonesian Language for Student Exchange Program to Indonesia  Indonesian Language Course for Exchange	Z,ZK	2
2146060	Basic of Indonesian Language for Student Exchange Program to Indonesia	Z	2
	Basic of Indonesian Language for Student Exchange Program to Indonesia  Indonesian Language Course for Exchange  Basic of Indonesian Language for Student Exchange Program to Indonesia	Z	
2146060 2146061 2151002	Basic of Indonesian Language for Student Exchange Program to Indonesia  Indonesian Language Course for Exchange Basic of Indonesian Language for Student Exchange Program to Indonesia  Technical Indonesian - Course I. Second part of Indonesian Language for Student Exchange Program to Indonesia  Nuclear Power Principles	Z Z Z,ZK	2 2 5
2146060 2146061 2151002 Physical fundame	Basic of Indonesian Language for Student Exchange Program to Indonesia  Indonesian Language Course for Exchange Basic of Indonesian Language for Student Exchange Program to Indonesia  Technical Indonesian - Course I. Second part of Indonesian Language for Student Exchange Program to Indonesia  Nuclear Power Principles  ntals of nuclear energy. Development and heat removal from core. Basic materials for nuclear reactors. Basic types of nuclear reactors.	Z Z,ZK rs. Review of adva	2 2 5 nced types
2146060 2146061 2151002 Physical fundamer of nuclear	Basic of Indonesian Language for Student Exchange Program to Indonesia  Indonesian Language Course for Exchange Basic of Indonesian Language for Student Exchange Program to Indonesia  Technical Indonesian - Course I. Second part of Indonesian Language for Student Exchange Program to Indonesia  Nuclear Power Principles  ntals of nuclear energy. Development and heat removal from core. Basic materials for nuclear reactors. Basic types of nuclear reactors. Fuel cycle. Reactor radiation, detection and quantification, determination of radiation doses. Problems of nuclear safety and	Z Z,ZK rs. Review of adva	2 2 5 nced types
2146060 2146061 2151002 Physical fundamer of nuclear 2151090	Basic of Indonesian Language for Student Exchange Program to Indonesia  Indonesian Language Course for Exchange Basic of Indonesian Language for Student Exchange Program to Indonesia  Technical Indonesian - Course I. Second part of Indonesian Language for Student Exchange Program to Indonesia  Nuclear Power Principles  Intals of nuclear energy. Development and heat removal from core. Basic materials for nuclear reactors. Basic types of nuclear safety and Industry power and heating plant	Z Z,ZK rs. Review of adva d technical provisic Z,ZK	2 2 5 nced types
2146060 2146061 2151002 Physical fundamer of nuclear	Basic of Indonesian Language for Student Exchange Program to Indonesia  Indonesian Language Course for Exchange Basic of Indonesian Language for Student Exchange Program to Indonesia  Technical Indonesian - Course I. Second part of Indonesian Language for Student Exchange Program to Indonesia  Nuclear Power Principles  ntals of nuclear energy. Development and heat removal from core. Basic materials for nuclear reactors. Basic types of nuclear reactors. Fuel cycle. Reactor radiation, detection and quantification, determination of radiation doses. Problems of nuclear safety and	Z Z,ZK rs. Review of adva	2 2 5 nced types ons. 5
2146060 2146061 2151002 Physical fundamer of nuclear 2151090 2151117	Basic of Indonesian Language for Student Exchange Program to Indonesia  Indonesian Language Course for Exchange Basic of Indonesian Language for Student Exchange Program to Indonesia  Technical Indonesian - Course I. Second part of Indonesian Language for Student Exchange Program to Indonesia  Nuclear Power Principles  ntals of nuclear energy. Development and heat removal from core. Basic materials for nuclear reactors. Basic types of nuclear reactors. Fuel cycle. Reactor radiation, detection and quantification, determination of radiation doses. Problems of nuclear safety and Industry power and heating plant  Design of Power Facilities	Z Z,ZK rs. Review of adva d technical provisic Z,ZK Z,ZK Z,ZK	2 2 5 nced types ons. 5 5
2146060  2146061  2151002 Physical fundamer of nuclear 2151090 2151117 2151118 2151158 2151165	Basic of Indonesian Language for Student Exchange Indonesian Language Course for Exchange Basic of Indonesian Language for Student Exchange Program to Indonesia  Technical Indonesian - Course I. Second part of Indonesian Language for Student Exchange Program to Indonesia  Nuclear Power Principles  Intals of nuclear energy. Development and heat removal from core. Basic materials for nuclear reactors. Basic types of nuclear safety and Industry power and heating plant  Design of Power Facilities  Distributed Energy  Principles of Refrigerating Technology and Heat Pumps  Hydraulic and Pneumatic Machines	Z Z,ZK rs. Review of adva d technical provision Z,ZK Z,ZK Z,ZK Z,ZK Z,ZK Z,ZK Z,ZK	2 2 5 nced types ons. 5 5 5 5 5 5 5 5
2146060  2146061  2151002 Physical fundamer of nuclear 2151090 2151117 2151118 2151158 2151165 Classificiation and	Basic of Indonesian Language for Student Exchange Program to Indonesia  Indonesian Language Course for Exchange Basic of Indonesian Language for Student Exchange Program to Indonesia  Technical Indonesian - Course I. Second part of Indonesian Language for Student Exchange Program to Indonesia  Nuclear Power Principles  Intals of nuclear energy. Development and heat removal from core. Basic materials for nuclear reactors. Basic types of nuclear reactor reactors. Fuel cycle. Reactor radiation, detection and quantification, determination of radiation doses. Problems of nuclear safety and Industry power and heating plant  Design of Power Facilities  Distributed Energy  Principles of Refrigerating Technology and Heat Pumps  Hydraulic and Pneumatic Machines  d principles of operation of hydraulic machines. Criterions of hydrodynamical similarity. Hydraulic systems. Differend types of pumps,	Z Z,ZK rs. Review of advade technical provision Z,ZK Z,ZK Z,ZK Z,ZK Z,ZK Z,ZK Construction, capa	2 2 5 nced types ons. 5 5 5 5 5 city control
2146060  2146061  2151002 Physical fundamer of nuclear  2151090  2151117  2151118  2151158  2151165 Classificiation and and operation in	Basic of Indonesian Language for Student Exchange Indonesian Language Course for Exchange Basic of Indonesian Language for Student Exchange Program to Indonesia  Technical Indonesian - Course I. Second part of Indonesian Language for Student Exchange Program to Indonesia  Nuclear Power Principles  Intals of nuclear energy. Development and heat removal from core. Basic materials for nuclear reactors. Basic types of nuclear safety and Industry power and heating plant  Design of Power Facilities  Distributed Energy  Principles of Refrigerating Technology and Heat Pumps  Hydraulic and Pneumatic Machines	Z Z,ZK rs. Review of adva d technical provision Z,ZK Z,ZK Z,ZK Z,ZK Z,ZK Z,ZK and Z,ZK Z,ZK z,ZK z,ZK z,ZK z,ZK z,ZK z,ZK	2 2 5 nced types ons. 5 5 5 5 5 city control
2146060  2146061  2151002 Physical fundamer of nuclear  2151090  2151117  2151118  2151158  2151165 Classificiation and and operation in	Basic of Indonesian Language for Student Exchange Program to Indonesia  Indonesian Language Course for Exchange Basic of Indonesian Language for Student Exchange Program to Indonesia  Technical Indonesian - Course I. Second part of Indonesian Language for Student Exchange Program to Indonesia  Nuclear Power Principles  Intals of nuclear energy. Development and heat removal from core. Basic materials for nuclear reactors. Basic types of nuclear reactor reactors. Fuel cycle. Reactor radiation, detection and quantification, determination of radiation doses. Problems of nuclear safety and Industry power and heating plant  Design of Power Facilities  Distributed Energy  Principles of Refrigerating Technology and Heat Pumps  Hydraulic and Pneumatic Machines  d principles of operation of hydraulic machines. Criterions of hydrodynamical similarity. Hydraulic systems. Differend types of pumps, in various conditions. Theory of compression processes. Constructions, calculation, capacity control of compressors, operation with v	Z Z,ZK rs. Review of adva d technical provision Z,ZK Z,ZK Z,ZK Z,ZK Z,ZK Z,ZK and Z,ZK Z,ZK z,ZK z,ZK z,ZK z,ZK z,ZK z,ZK	2 2 5 nced types ons. 5 5 5 5 5 city control
2146060  2146061  2151002 Physical fundamer of nuclear  2151090  2151117  2151118  2151158  2151165  Classificiation and and operation in cor  2151554  2151559	Basic of Indonesian Language for Student Exchange Program to Indonesia  Indonesian Language Course for Exchange Basic of Indonesian Language for Student Exchange Program to Indonesia  Technical Indonesian - Course I. Second part of Indonesian Language for Student Exchange Program to Indonesia  Nuclear Power Principles  Intals of nuclear energy. Development and heat removal from core. Basic materials for nuclear reactors. Basic types of nuclear reactor reactors. Fuel cycle. Reactor radiation, detection and quantification, determination of radiation doses. Problems of nuclear safety and Industry power and heating plant  Design of Power Facilities  Distributed Energy  Principles of Refrigerating Technology and Heat Pumps  Hydraulic and Pneumatic Machines  d principles of operation of hydraulic machines. Criterions of hydrodynamical similarity. Hydraulic systems. Differend types of pumps, in various conditions. Theory of compression processes. Constructions, calculation, capacity control of compressors, operation with vimpressors. Accessories of a compressor stations and plants. Economical and ecological problems of a compressed air production and plants. Economical and ecological problems of a compressed air production and plants.	Z Z,ZK rs. Review of adva d technical provision Z,ZK Z,ZK Z,ZK Z,ZK Z,ZK Z,ZK construction, capa arious gases. Refrind distribution.	2  5 nced types ns.  5 5 5 5 city control igerating
2146060  2146061  2151002 Physical fundamer of nuclear  2151090  2151117  2151118  2151158  2151165  Classificiation and and operation in cor  2151554  2151559  2151702	Basic of Indonesian Language for Student Exchange Program to Indonesia  Indonesian Language Course for Exchange Basic of Indonesian Language for Student Exchange Program to Indonesia  Technical Indonesian - Course I.  Second part of Indonesian Language for Student Exchange Program to Indonesia  Nuclear Power Principles  Intals of nuclear energy. Development and heat removal from core. Basic materials for nuclear reactors. Basic types of nuclear reactor reactors. Fuel cycle. Reactor radiation, detection and quantification, determination of radiation doses. Problems of nuclear safety and Industry power and heating plant  Design of Power Facilities  Distributed Energy  Principles of Refrigerating Technology and Heat Pumps  Hydraulic and Pneumatic Machines  d principles of operation of hydraulic machines. Criterions of hydrodynamical similarity. Hydraulic systems. Differend types of pumps, in various conditions. Theory of compression processes. Constructions, calculation, capacity control of compressors, operation with vimpressors. Accessories of a compressor stations and plants. Economical and ecological problems of a compressed air production at Thermal Turbines  Heat Exchangers and Boilers  Renewable Energy Sources	Z Z,ZK rs. Review of adva d technical provisio Z,ZK Z,ZK Z,ZK Z,ZK Z,ZK Z,ZK Z,ZK Z,Z	2 2 5 nced types ons. 5 5 5 5 city control igerating 5 5 5
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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 71/	
2181508	Heat transfer equipments  ermodynamics and conductive and convective heat transfer. Enthalpy balancing. Technical thermodynamics and basic thermodynamic	Z,ZK	5
i unuamentais oi tii	mechanical design, thermal and hydraulic design of a heat exchangers, evaporators and dryers.	cycles. i unclional	description,
2182019	Chemistry	KZ	3
	y from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties		_
	n, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochem		
	oriented upon the material properties measurement.		
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.		
2183985	Bachelor Thesis	Z	5
Bachelor thesis is	final individual work. This work checks ability of logical independent technical thinking and treatment with technical materials. There is	s applied acquired	knowledge
	from previous study periods.		1
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.
0044400	There are introduced the methods of description of position and motion of particles and rigid bodies.	7 714	1
2311102	Mechanics II.	Z,ZK	4
· ·	and of rigid bodies. Transformation matrix. Kinematics of concurrent movements. Motion: translation, rotation, general planar motion, s	•	
generai spaliai mol	ion. Composition of mechanisms. Basic planar mechanisms. Analytical methods in kinematics of mechanisms - Trigonometric and vection kinematics. Basic theory of gearing. Transmition mechanisms with geers. Strutting and seezing in mechanisms. Cable mechanisms.	·	carmemous
2321039	Materials Science II.	Z,ZK	4
	netallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and the	'	
T undamontale of th	technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materi		processing,
2322029	Materials Science I.	KZ	3
	ent state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, defor	1	1
	erials, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, in		
2362091	Project	KZ	2
			_
2363091	Project Presentation	Z	4
2363091 2371047	Project Presentation Automatic Control	Z Z,ZK	4 5
2363091 2371047 Automatic controll	Project Presentation  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 Z,ZK ic control theory a	4 5 nd practice
2363091 2371047 Automatic controll like transfer function	Project Presentation Automatic Control	Z Z,ZK ic control theory at	4 5 nd practice I and control
2363091 2371047 Automatic controll like transfer function	Project Presentation  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 Z,ZK ic control theory at	4 5 nd practice I and control
2363091 2371047 Automatic controll like transfer function via programmabl 2372041	Project Presentation  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 Z,ZK ic control theory at tes on logic control Students begin to	4 5 nd practice I and control work with
2363091 2371047 Automatic controll like transfer function via programmabl 2372041 The course introduce	Project Presentation  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 the control engineers.	Z Z,ZK ic control theory at tes on logic control Students begin to  KZ he use of compute	4 5 nd practice I and control work with 3 ers. Students
2363091 2371047 Automatic controll like transfer function via programmabl 2372041 The course introdur gain practice	Project Presentation  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 lat skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical computations with a spreadsheet calculator, and by creating technical computations with a spreadsheet calculator.	Z Z,ZK ic control theory at tes on logic control Students begin to  KZ he use of compute ical-based WWW p	4 5 nd practice I and control work with 3 rrs. Students page.
2363091 2371047 Automatic controll like transfer function via programmabl 2372041 The course introdur gain practica 2372083	Project Presentation  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 a spreadsheet calculator, and by creating technical measurement in Engineering	Z Z,ZK ic control theory at tes on logic control Students begin to  KZ he use of compute ical-based WWW p	4 5 nd practice I and control work with 3 ers. Students page. 3
2363091 2371047 Automatic controll like transfer function via programmabl 2372041 The course introdur gain practica 2372083	Project Presentation  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 a spreadsheet calculator, and by creating technical skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical measurement in Engineering  sor principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and	Z Z,ZK ic control theory at tes on logic control Students begin to  KZ he use of compute ical-based WWW p	4 5 nd practice I and control work with 3 ers. Students page. 3
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