Study plan

Name of study plan: 02 26 31 34 BSTR EPT 2012 P základ

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch:

Program of study: Bachelor of Mechanical Engineering

Type of study: Bachelor full-time

Required credits: 279

Elective courses credits: -36 Sum of credits in the plan: 243 Note on the plan: export 03

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 202

The role of the block: P

Code of the group: 12B*P*P-TV

Name of the group: 07 2012 bakalá ský t locvik

Requirement credits in the group: In this group you have to gain 3 credits

Requirement courses in the group: In this group you have to complete 3 courses

Credits in the group: 3

Note on the group: Letní výcvikový kurz je předmět povinný. Student jej může vykonat kdykoliv v průběhu studia,

avšak v souladu s příslušnými ustanoveními Ústavu tělesné výchovy a sportu ČVUT

Code of the group: 12B*P*P-ZT21

Name of the group: 04 2012 prezen ní ZT v po adí 21

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:

	F '					
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
2333038	Fundamentals of Technology I.	Z	3	1P+1C	*	P

Characteristics of the courses of this group of Study Plan: Code=12B*P*P-ZT21 Name=04 2012 prezen ní ZT v po adí 21

2333038	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: 12B-KMENP TZI STR

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

Requirement courses in the group: In this group you have to complete 37 courses

Credits in the group: 156

Note on the group: Společné povinné předměty bakalářských programů STR a TZSI

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members)	Completion	Credits	Scope	Semester	Role
2371047	Tutors, authors and guarantors (gar.) Automatic Control Milan Hofreiter, R žena Petrová, Tomáš Vyhlídal, Jaromír Fišer Tomáš	Z,ZK	5	3P+15C+05L	*	P
	Vyhlídal Tomáš Vyhlídal (Gar.)	_,				
2182019	Chemistry Radek Šulc, Martin Dostál, Vojt ch B lohlav, Stanislav Solna, Jan Sko ilas Radek Šulc Radek Šulc (Gar.)	KZ	3	2P+1C	1	Р
2131512	Machine Elements and Mechanisms I. Eliška Cézová, Zden k ešpíro, Martin Dub, Martin Havlí ek, Jan Hoidekr, Ji í Houkal, Jan Kanaval, František Lopot, Ji í Mrázek, František Lopot František Lopot (Gar.)	Z,ZK	6	3P+2C	*	Р
2131026	Machine Elements and Mechanisms II Eliška Cézová, Zden k ešpíro, Martin Dub, Ji í Houkal, Jan Kanaval, František Lopot, Karel Petr, Jan Flek František Lopot František Lopot (Gar.)	ZK	3	3P+0C	*	Р
2141504	Electric Circuits and Electronics Stanislava Papežová, Jan Chyský, Jaroslav Novák, Lukáš Novák Jaroslav Novák Jan Chyský (Gar.)	Z,ZK	4	2P+0C+2L	*	Р
2141505	Electrical machines and drives Jan Chyský, Jaroslav Novák, Lubomír Musálek, Michael Valášek Jaroslav Novák Jan Chyský (Gar.)	Z,ZK	4	2P+0C+2L	*	Р
2021041	Physics I.	Z,ZK	7	4P+1L	*	P
2021025	Physics II.	Z,ZK	4	1P+2L	3	P
2133025	Design	Z	4	0P+4C	*	Р
2011021	František Lopot František Lopot (Gar.) Constructive Geometry Ivana Linkeová	Z,ZK	6	3P+2C	*	Р
2381054	Management and Economics of the Enterprise Olga Heralová, Št pánka Uli ná, Vladimír Brdek, Petr Žemli ka Olga Heralová (Gar.)	Z,ZK	4	2P+2C	*	Р
2011056	Mathematics I 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. Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Michael Valášek Michael Valášek (Gar.)	Z,ZK	4	2P+2C	*	Р
2311102	Mechanics II. Michael Valášek, Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Michael Valášek Václav Bauma (Gar.)	Z,ZK	4	2P+2C	*	Р
2121500	Fluid Dynamics	Z,ZK	5	3P+2C	*	Р
2322029	Materials Science I. Jakub Horník, Jana Sobotová, Ji í Cejp, Elena ižmárová, Pavlína Hájková, Stanislav Krum, Jan Kr il, Vladimír Mára, Lucie Pilsová, Jana Sobotová Jana Sobotová (Gar.)	KZ	3	2P+1L	2	Р
2321039	Materials Science II. Jakub Horník, Jana Sobotová, Ji í Cejp, Elena ižmárová, Jan Walter, Pavlína Hájková, Stanislav Krum, Jan Kr il, Vladimír Mára, Stanislav Krum Jana Sobotová (Gar.)	Z,ZK	4	2P+2L	*	Р
2011049	Numerical Mathematics Radka Keslerová, Ji í Holman, Marta ertíková, Vladimír Hric, Petr Louda, Lukáš Hájek, Jan Valášek, Lud k Beneš, Tomáš Bodnár, Petr Svá ek Petr Svá ek (Gar.)	Z,ZK	4	2P+2C	4	Р
2012037	Computer Graphics Marta Hlavová, Ji í Holman, Nikola Pajerová, Martin Hanek, Jan Karel, Ivana Linkeová, Jaroslav Cibulka Ivana Linkeová	KZ	3	1P+1C	*	Р
2372041	Computer Support for Study Vladimir Hlavá	KZ	3	1P+1C	*	Р
2181026	Momentum, Mass and Heat Transfer Martin Dostál, Vojt ch B Iohlav, Stanislav Solna, Jan Sko ilas, Tomáš Jirout, Adam Krupica, Ji í Moravec Tomáš Jirout Tomáš Jirout (Gar.)	Z,ZK	5	3P+1C	*	Р
2132001	Engineering Design I. Karel Petr	KZ	2	1P+2C	1	Р
2131002	Engineering Design II Martin Dub, Martin Havlí ek, Jan Hoidekr, Jan Kanaval, Karel Petr, Marek Štádler, Jan Flek Karel Petr Karel Petr (Gar.)	Z,ZK	4	2P+3C	2	Р
2133013	Engineering Design III. Jan Hoidekr, Jan Kanaval, František Lopot, David Skalický, Roman Uhlí Jan Hoidekr Jan Hoidekr (Gar.)	Z	2	0P+2C	Z	Р

2133014	Engineering Design IV. František Lopot František Lopot (Gar.)	Z	2	0P+2C	L	Р
2372083	Measurement in Engineering Martin Novák, Vladimír Hlavá Martin Novák Martin Novák (Gar.)	KZ	3	1P+0C+2L	*	Р
2331068	Technology I.	Z,ZK	5	2P+2C	*	Р
2341014	Technology II.	Z,ZK	5	2P+0C+2L	*	Р
2121023	Thermodynamics	Z,ZK	5	3P+2C	*	Р
2131005	History of Technology	ZK	3	2P+0C	1	Р
2012035	Algorithmization and Programming Fundamentals 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 Ond ej Bartoš, Tomáš Dlouhý, Václav Dostál, Zden k Funda, Miroslav Gleitz, Jan Havlík, Št pán Hrouda, Jitka Jeníková, Guk Chol Jun, Jan Havlík	Z	1	1P+1C	*	Р
2383001	Fundamentals of Law Václav Pilík Václav Pilík (Gar.)	Z	2	1P+1C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12B-KMENP TZI STR Name=01 2012 souhrn skupin 12B*PiP-KMEN pro i od 1 do 6 2371047 **Automatic Control** Z,ZK 5 Automatic controllers are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automatic control theory and practice like transfer functions, open versus closed loop control, design of controllers and frequency based analysis of control systems. The course also concentrates on logic control and control via programmable logic controllers. Some 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 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 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 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 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 Kinematics and dynamics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic properties of bodies. Oscillations, waves. Fluid mechanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Conductors, semiconductors, insulators. Magnetic field, Magnetic materials, Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect measurements, regression, measurements of 11 various experiments related to the lectures. 2021025 Physics II 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. 2133025 Design 4 Design, design calculations and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft couplings and clutches. 2011021 Z.ZK Constructive Geometry 6 The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations. 2381054 Management and Economics of the Enterprise Z.ZK 4 The course is designed to give students the understanding of economic principles. The economical part of the course is consisted from: explanation of relationship between costs and revenues, expenses and income, concept of investment and calculations per product, presentation how to assemble a basic operating budget and explanation of the basic structure of the financial statements. The management introduces the basic managerial functions and their contents, the uses of network analysis in project management, with the application of multi-criteria decision, the basics of marketing and strategic management. 2011056 Mathematics I Z,ZK In the course, greater emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connections between concepts. Students will also get to know the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: eigennumbers and eigenvectors of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.

2011062	Matematika II.	Z,ZK	8
1 -	boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differentiability.	-	
, ,	ction given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral and spherical coordinates. A simple expects over and line integral of a cooler and vector function. Circulation and		
1	/lindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Gi ia line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a ve		•
Gauss-Ostrogradskij t		otor noid unough	a canace. The
2011009	Mathematics III	Z,ZK	5
	e in ordinary differential equation and infinite series.	_,	_
2311101	Mechanics I.	Z,ZK	4
Mechanics I deals with	n the basic concepts of statics. There are described the methods of solution of equilibrium of particles and rigid bodies and their	r systems with and	d without friction.
	the methods of description of position and motion of particles and rigid bodies.		
2311102	Mechanics II.	Z,ZK	4
1	d of rigid bodies. Transformation matrix. Kinematics of concurrent movements. Motion: translation, rotation, general planar motic		
1 -	. Composition of mechanisms. Basic planar mechanisms. Analytical methods in kinematics of mechanisms - Trigonometric and leory of gearing. Transmition mechanisms with geers. Strutting and seezing in mechanisms. Cable mechanisms.	vector method. Gr	apnicai methods
2121500	Fluid Dynamics	Z.ZK	5
	id dynamics deals with fundamental laws of hydrostatics and hydrodynamics and their application on the basic problems, as	,	_
	lified solution of unsteady flow. Basic information on more complicated problems (laminar and turbulent flow, boundary layer the		
introduced as well.			
2322029	Materials Science I.	KZ	3
1 .	ate of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, def	=	
	structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, in		
2321039	Materials Science II.	Z,ZK	4
	allurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal are	nd thermo-mechai	nical processing,
2011049	alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materials.	7 71/	4
1	Numerical Mathematics systems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Nume	Z,ZK	•
	poundary value problems. Numerical solution of basic linear partial differential equations by finite difference method.	rical solution of on	amary dinerential
2012037	Computer Graphics	KZ	3
2372041	Computer Support for Study	KZ	3
	students into creating technical and professional documents on computers or Web and into realizing technical computations w		
	creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical		
2181026	Momentum, Mass and Heat Transfer	Z,ZK	5
	sport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechani		
	ntinuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and	thermal radiation.	Multicomponent
2132001	er by molecular diffusion, convection, with chemical reactions and interphase mass transfer.	KZ	2
	Engineering Design I. resentation, dimensioning and tolerancing	NZ	2
2131002	Engineering Design II	Z,ZK	4
	Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surfa		-
dimensional loops, tole	erancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice the	eir knowledge fron	lectures.
2133013	Engineering Design III.	Z	2
Design of assembly ur	nit (draft drawing, detail drawing, assembly drawing, technical report)		
2133014	Engineering Design IV.	Z	2
2372083	Measurement in Engineering	KZ	3
	inciples for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and	d verification of me	easurement
instruments.	Took and a mod	7.71/	-
2331068	Technology I. metals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of	Z,ZK	5 Semi-products
1 '''	old and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. Brazing. Surface treatments.	iorning processes	. Jerni-products,
2341014	Technology II.	Z,ZK	5
	nation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining eco		_
programming of manu	facture. Engineering metrology. Assembly techniques. Introduction to process planing.		
2121023	Thermodynamics	Z,ZK	5
	a basic engineering approach to classical thermodynamics, heat transfer and compressible flow through nozzles and diffusers.		
1	re applied mostly to systems behaving as ideal gases or typical vapours. Basic notions associated with ideal mixtures are studied w		
problems and experim	undamentals of conduction, convection and radiation. Heat exchangers are treated as an engineering application.Exercises ar sental technique	id labs are devote	u to practicai
2131005	History of Technology	ZK	3
!	an knowledge in the domain of science and technology in the retrospective of the developement of our civilization. Emphasis i	1	
	al attention to the contribution of mining, iron metallurgy, power engineering, transportation and of the machine industry in the		
2012035	Algorithmization and Programming Fundamentals	KZ	4
1	AB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Ma		d operations.
1	t and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Specific states of the command of t	=	-
	re of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. S	-	
	mum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of	-	-
2153005	Fundamentals of Energy Conversions	Z	1

2383001 Fundamentals of Law

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

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

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 Michal Kolovratník, Pavel Mosler, Jan Melichar Jan Melichar Jan Melichar (Gar.)	Z,ZK	5	2P+2C	*	Р
2151090	Industry power and heating plant Michal Kolovratník, František Hrdli ka, Lukáš Pila Michal Kolovratník František Hrdli ka (Gar.)	Z,ZK	5	2P+2C	*	Р
2151554	Thermal Turbines Michal Kolovratník Ond ej Bartoš Michal Kolovratník (Gar.)	Z,ZK	5	2P+2C	*	Р
2151559	Heat Exchangers and Boilers Tomáš Dlouhý Pavel Skopec Tomáš Dlouhý (Gar.)	Z,ZK	5	2P+2C	*	Р

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

2151165 | Hydraulic and Pneumatic Machines | Z,ZK | 5
Classificiation and principles of operation of hydraulic machines. Criterions of hydrodynamical similarity. Hydraulic systems. Differend types of pumps, construction, capacity control and operation in various conditions. Theory of compression processes. Constructions, calculation, capacity control of compressors, operation with various gases. Refrigerating compressors. Accessories of a compressor stations and plants. Economical and ecological problems of a compressed air production and distribution.

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 Michal Kolovratník, Jakub Maš uch Michal Kolovratník Michal Kolovratník (Gar.)	Z,ZK	5	2P+2C	*	Р
2151117	Design of Power Facilities Lukáš Pila Lukáš Pila	Z,ZK	5	2P+2C	*	Р
2153006	Technology of Air Protection in Power Engineering Jan Hrdli ka	Z	2	0P+2C	*	Р
2151158	Principles of Refrigerating Technology and Heat Pumps Michal Kolovratník, Miroslav Petrák Miroslav Petrák	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)	Completion	Credits	Scope	Semester	Role
2383019	Tutors, authors and guarantors (gar.) Philosophical Issues Of Individual and Science	Z	2	1P+1C	*	PV
2383009	Communication and Dealing with People Jan Horejc Jan Horejc (Gar.)	Z	2	1P+1C	*	PV
2383008	Managerial Psychology	Z	2	1P+1C	*	PV

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

2383019	Philosophical Issues Of Individual and Science	Z	2				
2383009	Communication and Dealing with People	Z	2				
Human communication	represents an irreplaceable phenomenon in human activity, as it is present in practically all of his activities. The same applie:	s (with specific mo	odifications) to				
the activities of manage	the activities of managers. So you can't not communicate - you can only communicate badly, well and excellently.						
2383008	Managerial Psychology	Z	2				

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

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

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

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

Credits in the group: 2

Note on the group:

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

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

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

· · · · · · · · · · · · · · · · · · ·			
2041061	English-Bachelor Exam	Z,ZK	2
Mapped to the Com	mon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	iculties, to take par	rt in discussions,
to write a summary,	a report and an essay, to read technical texts, to master grammar at advanced level.		
2041063	French - Bachelor Exam /FME	Z,ZK	2
Mapped to the Com	non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	iculties, to take par	rt in discussions,
to write a summary,	a report and an essay, to read technical texts, to master grammar at advanced level.		
2041062	German - Bachelor Exam / FME	Z,ZK	2
Mapped to the Com	non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	iculties, to take par	rt in discussions,
to write a summary,	a report and an essay, to read technical texts, to master grammar at advanced level.		
2041065	Russian - Bachelor Exam / FME	Z,ZK	2
Mapped to the Com	non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	iculties, to take par	rt in discussions,
to write a summary,	a report and an essay, to read technical texts, to master grammar at advanced level.		
2041064	Spanish - Bachelor Exam / FME	Z,ZK	2
Mapped to the Com	non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	iculties, to take par	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
2162091	Project	KZ	2	0P+2C	*	PV
2132503	Project Ji i Houkal	KZ	2	0P+2C	*	PV

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

2372091	Project	KZ	2		
An individual project	·				
2362091	Project	KZ	2		
2152091	Deparmental Project	KZ	2		
2182091	Project	KZ	2		
Absolvent se seznár	ní se základy oboru Procesní technika.				
2162091	Project	KZ	2		
Student will be informed about basics of environmental engineering and creation of thermal comfort.					
2132503	Project	KZ	2		
		1	- .		

Elaboration of semester global project of mechanical drive of conveyor composed of electric motor, elastic shaft coupling (respectively V-belt drive), gearbox provided with two pairs of mating gears and compensating double-row toothed shaft coupling (respectively roller chain drive). Second, alternative arrangement of projected mechanical drive is provided instead of previous gearbox and additional mechanical drives by means of only one single-stage warm gearbox.. Elaboration of 4 additional reports analysing production and economic problems of assigned machine element (gearbox shaft or gear). Besides project of mechanical drive must be elaborated design project of crank mechanism and its flywheel for assigned single-cylinder piston engine.

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
2133091	Presentation of Project Ji í Houkal	Z	4	4B	*	PV
2153091	Presentation of Project Václav Dostál	Z	4	4B	*	PV
2363091	Project Presentation	Z	4	4B		PV
2183091	Project Presentation Tomáš Jirout	Z	4	0P+4C	*	PV
2373091	Project presentation	Z	4	4B	*	PV
2163091	Project Presentation	Z	4	4B	*	PV

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

2133091	Presentation of Project	Z	4	
2153091	Presentation of Project	Z	4	
2363091	Project Presentation	Z	4	
2183091	Project Presentation	Z	4	
Preparation and presentation of a given project theme.				

2373091 Project presentation

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.

2163091 Project Presentation

Processing and presentation of engaged theme

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

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

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

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

Credits in the group: 5

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

Ústav procesní a zpracovatelské techniky

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2183707	Project I. Radek Šulc, Lukáš Krátký Lukáš Krátký Lukáš Krátký (Gar.)	Z	5	0P+7C	*	PV
2153707	Project I. Ond ej Bartoš, Tomáš Dlouhý, Václav Dostál, Jan Havlík, Michal Kolovratník, Jan Opat il, Pavel Skopec, Jan Špale, Jan Melichar, Pavel Skopec Tomáš Dlouhý (Gar.)	Z	5	0P+7C	*	PV

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

2183707	Project I.	Z	5
Project, dimensioning a			
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 Václav Dostál, Pavel Zácha, Václav Železný Václav Dostál Václav Dostál (Gar.)	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 c	onveyors, crushers and mills, granulators, extruders, injection and blow moulding machines, rolls and calenders.					
2151002	Nuclear Power Principles	Z,ZK	5			
Physical fundamentals of nuclear energy. Development and heat removal from core. Basic materials for nuclear reactors. Basic types of nuclear reactors. Review of advanced types						
of nuclear reactors. Fu	of nuclear reactors. Fuel cycle. Reactor radiation, detection and quantification, determination of radiation doses. Problems of nuclear safety and technical provisions.					

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

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

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

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

Credits in the group: 5

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

2183985 Ústav procesní a zpracovatelské techniky

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2183985	Bachelor Thesis Tomáš Jirout	Z	5	0P+6C	*	PV
2153985	Bachelor Thesis	Z	5	0P+6C	*	PV

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

2183985	Bachelor Thesis	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 Michal Kolovratník	KZ	5	2P+2C	*	PV
2151702	Renewable Energy Sources Jan Havlík	Z,ZK	5	2P+2C	*	PV
2181508	Heat transfer equipments Martin Dostál, Stanislav Solna Martin Dostál Martin Dostál (Gar.)	Z,ZK	5	2P+2C	*	PV

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

2181507	Diffusion separation equipment	Z,ZK	5
Classis from Equipment	for diffusion separation processes are giving a basic knowledge of processes and equipments where gas or liquid mixture is	s been separated	due to principals
of physical-chemical eq	illibriums or on the basis of mass transfer mechanisms. They are used for concentrating of products from dilute solutions or	in turn for purifica	tion of diluted
gasses or liquid solution	S.		

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 studijního programu B2342 Teoretický základ strojního inženýrství.

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
202A041	Physics I.	ZK	3	0P+0L	*	V
202A025	Physics II.A	ZK	2	0P+0C	*	V
201A021	Constructive Geometry A 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
231A101	Mechanics I.A Michael Valášek	ZK	2	0P+0C	*	V
231A102	Mechanics II.A Michael Valášek	ZK	2	0P+0C	*	V
212A500	Fluid Dynamics A	ZK	3	0P+0C	*	V
201A049	Numerical Mathematics A Lud k Beneš	ZK	2	0P+0C	*	V
212A023	Thermodynamics A	ZK	2	0P+0C	*	V

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

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 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.

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

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

201A009	Mathematics III.A	ZK	2
231A101	Mechanics I.A	ZK	2
231A102	Mechanics II.A	ZK	2
212A500	Fluid Dynamics A	ZK	3

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

201A049	Numerical Mathematics A	ZK	2
212A023	Thermodynamics A	ZK	2

The course deal with a basic engineering approach to classical thermodynamics, heat transfer and compressible flow through nozzles and diffusers. Basic concepts and principles are introduced, and they are applied mostly to systems behaving as ideal gases or typical vapours. Basic notions associated with ideal mixtures are studied with an emphasis on psychometrics. Heat transfer covers fundamentals of conduction, convection and radiation. Heat exchangers are treated as an engineering application. Exercises and labs are devoted to practical problems and experimental technique

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

Name of the group: 05 2012 doporu ené seminá e

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

Credits in the group: 0

Note on the group:

Pokud si chce student své dosud získané znalosti (například z matematiky, fyziky, cizích jazyků atd.) doplnit, může si zapsat některý z volitelných předmětů, které příslušné ústavy pro 1. semestr

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

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

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

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

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

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

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

Credits in the group: 0 Note on the group:

Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their Code Completion Credits Scope Semester Role members) Tutors, **authors** and guarantors (gar.) **English Conversation** Michele Le Blanc, Eliška Vítková, Ilona Šimice, Nina Procházková Ayyub **Nina Procházková Ayyub** Michele Le Blanc (Gar.) 2 2046155 Ζ 0P+2C V **English Conversation** 2046156 Michele Le Blanc, Eliška Vítková, Ilona Šimice, Nina Procházková Ayyub Nina Ζ 2 0P+2C L Procházková Ayyub **English - Lower Intermediate** Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina Procházková Ayyub, Hana Volejníková, Veronika Kratochvílová 2046071 Ζ 2 0P+2C L **English - Lower Intermediate** Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina Procházková Ayyub, Hana Volejníková, Veronika Kratochvílová **Michaela Schusová** Ilona Šimice 2046070 7 2 0P+2C 7 (Gar.) **English - Advanced** Michele Le Blanc, Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina 2046074 Ζ 2 0P+2C Ζ Procházková Ayyub, Hana Volejníková, Veronika Kratochvílová **Michaela**Schusová Ilona Šimice (Gar.) **English - Advanced** Ζ 2 0P+2C L 2046075 V Michele Le Blanc, Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina Procházková Ayyub, Hana Volejníková, Veronika Kratochvílová Ilona Šimice **English - Upper Intermediate** Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina Procházková Ayyub, Ζ 2 0P+2C Ζ 2046072 Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.) **English - Upper Intermediate** 2046073 7 2 0P+2C ı Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina Procházková Ayyub, Hana Volejníková, Veronika Kratochvílová Ilona Šimice **English - Beginners** Ζ 2046068 7 2 0P+2C Eliška Vítková, Michaela Schusová, Ilona Šimice, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.) **English - Beginners** 2046069 Ζ 2 0P+2C L Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina Procházková Ayyub, Hana Volejníková, Veronika Kratochvílová Ilona Šimice **Czech Lower Intermediate** Ζ 2 2046126 0P+2C L ٧ Jaroslava Kommová **Czech Lower Intermediate** 2046125 Ζ 2 0P+2C Ζ Jaroslava Kommová Czech -Advanced Ζ 2 0P+2C 2046118 L V Jaroslava Kommová Czech -Advanced Ζ 2 Ζ 2046117 0P+2C V Jaroslava Kommová Czech - Upper Intermediate 2046127 Ζ 2 0P+2C Ζ Jaroslava Kommová Czech - Upper Intermediate 2 0P+2C L 2046128 Ζ V Jaroslava Kommová Czech Language for Beginners I. Ζ 2 Ζ 2046119 0P+2C Jaroslava Kommová Czech Language for Beginners II. 2 2046120 Ζ 0P+2C L ٧ Jaroslava Kommová French - Lower Intermediate Course Ζ 2 0P+2C Ζ 2046086 Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.) French - Lower Intermediate Course 2046087 Ζ 2 0P+2C L Michaela Schusová, Dušana Jirovská Dušana Jirovská French - Advanced Ζ 2 2046091 0P+2C L Michaela Schusová, Dušana Jirovská Dušana Jirovská French - Advanced 2 Ζ 2046090 Ζ 0P+2C Eliška Vítková, Michaela Schusová, Dušana Jirovská Eliška Vítková Eliška Vítková (Gar.) French - Upper Intermediate 2046089 Ζ 2 0P+2C L ٧ Michaela Schusová, Dušana Jirovská Dušana Jirovská French - Upper Intermediate 2046088 Ζ 2 0P+2C Ζ Eliška Vítková, Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.) French - Beginners 2046084 Ζ 2 0P+2C Ζ Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)

2046085	French - Beginners' Course Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	L,	V
2146060	Indonesian Language Course for Exchange	Z	2	0P+2C	*	V
2146061	Technical Indonesian - Course I.	Z	2	0P+2C	Z	V
2144062	Technical Indonesian - Course II.	Z,ZK	3	1P+2C	L	V
2046078	German - Lower Intermediate Course Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046079	German - Lower Intermediate Course Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich Eliška Vítková	Z	2	0P+2C	L	V
2046083	German - Advanced Course Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich Jaroslava Kommová	Z	2	0P+2C	L	V
2046082	German - Advanced Course Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046081	German - Upper Intermediate Course Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich Eliška Vítková	Z	2	0P+2C	L	V
2046080	German - Upper Intermediate Course Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046076	German - Beginners Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046077	German - Beginners Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich Eliška Vítková	Z	2	0P+2C	L	V
2046161	Presentations in English Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina Procházková Ayyub Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	*	V
2046166	Presentations in Czech Eliška Vítková, Jaroslava Kommová, Petr Laurich Jaroslava Kommová Petr Laurich (Gar.)	Z	2	0P+2C	*	V
2046162	Presentations in German Eliška Vítková, Jaroslava Kommová, Petr Laurich Jaroslava Kommová Eliška Vítková (Gar.)	Z	2	0P+2C	*	V
2046164	Presentations in Russian Eliška Vítková, Dušana Jirovská Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	*	V
2046163	Presentations in French language Eliška Vítková, Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	*	V
2046165	Presentations in Spanish Eliška Vítková Eliška Vítková	Z	2	0P+2C	*	V
2046137	Russian - Lower Intermediate Course Eliška Vítková, Michaela Schusová, Hana Volejníková, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046138	Russian - Lower Intermediate Course Michaela Schusová, Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046141	Russian - Advanced Eliška Vítková, Michaela Schusová, Hana Volejníková, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046142	Russian - Advanced 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 Eliška Vítková, Michaela Schusová, Hana Volejníková, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046136	Russian - Beginners Michaela Schusová, Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046135	Russian - Beginners Eliška Vítková, Michaela Schusová, Hana Volejníková, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046099	Spanish - Lower Intermediate Michaela Schusová, Jaime Andrés Villagómez Eliška Vítková	Z	2	0P+2C	L	V
2046098	Spanish - Lower Intermediate Eliška Vítková, Michaela Schusová, Jaime Andrés Villagómez Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046096	Spanish - Beginners Eliška Vítková, Michaela Schusová, Jaime Andrés Villagómez Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046097	Spanish - Beginners Michaela Schusová, Jaime Andrés Villagómez Jaime Andrés Villagómez	Z	2	0P+2C	L	V

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

2046155	English Conversation	Z	2
2046156	ive skills in speaking on general topics and general technical topics. English Conversation	Z	2
	ive skills in speaking on general topics and general technical topics.	_	
2046071	English - Lower Intermediate	Z	2
1 ' ' '	on European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which		
	and speaking about them. Writing in a simple way about familiar topics, reading and comprehension of simple texts. Improvem	ent of professiona	i
2046070 Aim: Understanding cle	English - Lower Intermediate Early what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	∠ em. Writing in a sir	2 mple wav about
	g and comprehension of simple texts. Improvement of professional language. A1 - A2.	3	17
2046074	English - Advanced	Z	2
1	on of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Writ		
-	summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student´s fien In advanced level. B1 - B2.	ia of studies with	out difficulties.
2046075	English - Advanced	Z	2
Mapped to the Commo	on European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in E	nglish without gr	eat difficulties
1 ' '	n 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	r-scientific and
2046072	ts from student's field of studies without difficulties. Grammar structures on advanced level. English - Upper Intermediate	7	2
	purposes in the internetiated and a register of the internetiated and common professional terminology. Comprehension of standard	_	_
about topics of everyda	ay life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1.		
2046073	English - Upper Intermediate	Z	2
1	on European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional En ension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on interm	_	-
knowledge.	should standard English specificand conversation about topics of everyday life - at school, at work, during free time, on liftern	lediate level. Bloa	dening graninal
2046068	English - Beginners	Z	2
Aim: Basic vocabulary	of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (p	rofessional langu	
2046069	English - Beginners	Z	2
1	on European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understan minology (professional language).	ding and use of b	asic expressions
2046126	Czech Lower Intermediate	7	2
	early what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	_	_
	g and comprehension of simple texts. Improvement of professional language.		Γ
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 g and comprehension of simple texts. Improvement of professional language.	m. writing in a sir	npie way about
2046118	Czech -Advanced	Z	2
Mapped to the level of	Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in C	zech without gre	at difficulties and
1 ' '	a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehen	sion of popular-so	cientific and
2046117	ts from student's field of studies without difficulties. Grammar structures on advanced level. Czech -Advanced	Z	2
	Ozeon -Advanced ken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in	=	_
1 '	write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical a		5 .
2046127	Czech - Upper Intermediate	Z	2
	rd speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abili	ty to describe exp	eriences and
2046128	one's opinions and plans. Reading and understanding general and technical texts. Czech - Upper Intermediate	Z	2
	n European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional	l .	l .
terminology. Comprehe	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
knowledge technical la			
2046119	Czech Language for Beginners I. eryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profes	sional language)	2
2046120	Czech Language for Beginners II.	7	2
	n European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understan	_	l
of general scientific ter	minology (professional language).		
2046086	French - Lower Intermediate Course	Z	2
1	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.	iting in a simple w	ay about familiar
2046087	French - Lower Intermediate Course	Z	2
	Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which	_	l
1 '''	peaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement		
2046091	French - Advanced	Z	2
1	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 an oular scientific and technical articles.	ia uniderstanding	texts concerning
2046090	French - Advanced	Z	2
1	ken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participatio	_	l
	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
1 '''	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students c alking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understa		
	and distribution and plants. To describe dispositioned and offering oxplaint and depiction and plants. Reducing and understand		

0040000	Te turn to the		
2046088	French - Upper Intermediate ard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abi	Z	eriences and
ū	n one's opinions and plans. Reading and understanding general and technical texts.	y to accombe on	50.10.1000 0.10
2046084	French - Beginners	Z	2
_	y what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. W	riting in a simple v	vay about familia
topics. Reading and c	comprehension of simple texts. Improvement of professional language.	Z	2
	French - Beginners´ Course of Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations whic	_	1
	speaking 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
Basic of Indonesian I	anguage for Student Exchange Program to Indonesia		<u>'</u>
2146061	Technical Indonesian - Course I.	Z	2
•	esian Language for Student Exchange Program to Indonesia	7.71/	
2144062 Basic of Indonesian I	Technical Indonesian - Course II. Language for Student Exchange Program to Indonesia	Z,ZK	3
2046078	German - Lower Intermediate Course	Z	2
	clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	_	1
familiar topics. Readi	ng and comprehension of simple texts. Improvement of professional language.		
2046079	German - Lower Intermediate Course	Z	2
	of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations whi		
or in his/her free time	and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvem German - Advanced Course	ent of professional	1 language.
	German - Advanced Course of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given	_	_
• •	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comp		•
scientific articles or te	exts from student's field of studies without difficulties. Grammar structures on advanced level.		
2046082	German - Advanced Course	Z	2
	poken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participa		s. Expressing
-	s. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and t		
2046081	German - Upper Intermediate Course of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students	Z	ork at school
	talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and underst		
2046080	German - Upper Intermediate Course	Z	2
Understanding stand	ard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abi	ility to describe exp	periences and
	n one's opinions and plans. Reading and understanding general and technical texts.	_	Ţ
2046076	German - Beginners	Z	2
	everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profe	ssional language)	2
2046077 Mapped to the level (German - Beginners Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding	_	_
	ninology (professional language).	,	
2046161	Presentations in English	Z	2
Preparing students to	present in English on technical topics, with a possible co-operation with specialized departments.	<u>'</u>	'
2046166	Presentations in Czech	Z	2
	o give presentations in English on technical topics, with a possible co-operation with specialized departments.		
2046162	Presentations in German	Z	2
2046164	Inting technical topics in German, possibly in cooperation with specialized departments. Presentations in Russian	Z	2
	riting technical topics in Russian, possibly in cooperation with specialized departments.		
2046163	Presentations in French language	Z	2
	nting technical topics in French, possibly in cooperation with specialized departments.	_	_
2046165	Presentations in Spanish	Z	2
Preparation for prese	nting technical topics in Spanish, possibly in cooperation with specialized departments.		1
2046137	Russian - Lower Intermediate Course	Z	2
-	y what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. W	riting in a simple v	vay about famili
	comprehension of simple texts. Improvement of professional language.	Z	2
2046138 Manned to the level of	Russian - Lower Intermediate Course of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a s	1	I
	ng about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of profi		
2046141	Russian - Advanced	Z	2
Comprehension of sp	poken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participa	tion in discussions	. Expressing
•	s. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and t		
2046142	Russian - Advanced	Z	2
	of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a	-	
	native speakers, participation in discussions. Expressing opinions, written skills. Ability to write an essay of a report. Reading a opular scientific and technical articles.	and understanding	ICAIS CUITCEITH
2046140	Russian - Upper Intermediate	Z	2
	of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student	1	1
	about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and underst	anding general an	d technical text
2046139	Russian - Upper Intermediate	Z	2
=	ard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abi	ility to describe exp	periences and
wents, briefly explain	n one's opinions and plans. Reading and understanding general and technical texts.		

2046136	Russian - Beginners	Z	2
Mapped to the leve	el of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understandi	ng and use of bas	c expressions
of general scientifi	c terminology (professional language)		
2046135	Russian - Beginners	Z	2
Basic vocabulary	of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profess	sional 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 stu	dent meets at sch	ool or in his/her
free time and spea	aking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of profes	ssional language.	
2046098	Spanish - Lower Intermediate	Z	2
Understanding cle	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wri	iting in a simple wa	y about familia
topics. Reading an	d comprehension of simple texts. Improvement of professional language.		
2046096	Spanish - Beginners	Z	2
Aim:Understanding	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about ther	m. Writing in a sim	ple way about
	ading and comprehension of simple texts. Improvement of professional language.		
	ading and comprehension of simple texts. Improvement of professional language. Spanish - Beginners	Z	2
familiar topics. Rea		Z student meets at	2 school or in

List of courses of this pass:

Code	Name of the course	Completion	Credits
2011009	Mathematics III An introductory course in ordinary differential equation and infinite series.	Z,ZK	5
2011021	Constructive Geometry	Z,ZK	6
2011021	The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relati		0
2011049	Numerical Mathematics	Z,ZK	4
	of systems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical		
rumencal solution	equations, initial and boundary value problems. Numerical solution of basic linear partial differential equations by finite difference		y dillororida
2011056	Mathematics I	Z.ZK	8
	ter emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connection	1 '	_
	v the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas:		
s g	of a matrix, Taylor 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. Differen	1 '	_
•	Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral,	. ,	,
, ,	r, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Gree		
	ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vect	•	
•	Gauss-Ostrogradskij theorem.	_	
2012035	Algorithmization and Programming Fundamentals	KZ	4
	MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Mat	I	I
	nput and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Systems		-
	tructure of program. Variables, expressions, assignment, and input / output commands, switch. For cycle. Arrays and files. Pointers. S	· · · · · · · · · · · · · · · · · · ·	-
simple programs	s: minimum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of	systems of linear e	quations.
2012037	Computer Graphics	KZ	3
2016007	Mathematics I Seminar	Z	2
201A009	Mathematics III.A	ZK	2
201A021	Constructive Geometry A	ZK	3
20171021	The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relati	I	
201A049	Numerical Mathematics A	ZK	2
201A056	Mathematics I.A	ZK	4
201A030	Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable	ZR	4
201A062	Mathematics II.A	ZK	4
	set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differen	1	
•	Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral,		
, ,	r, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Gree		
		•	
neia, independen	ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vect Gauss-Ostrogradskij theorem.	or neid inrough a s	unace. me
2024025		7.71/	4
2021025	Physics II.	Z,ZK	4
•	ectromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of ele natter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and	•	
	ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 expe		
2021041	Physics I.	Z,ZK	7
•	namics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic properties. The particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic properties. The particle motion.	•	
	echanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co		
insulators. Magnet	ic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect	ect measurements,	regression
	measurements of 11 various experiments related to the lectures.		

2026016	Physics - Seminar The subject is mainly meant for high-school students for repetition of high-school physics.	Z	2
202A025	Physics II.A	ZK	2
-	omagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of elec ter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and	-	
	: Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 exper		
202A041	Physics I.	ZK	3
	nics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic pro		_
	nanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Coi ield. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirec		
· ·	measurements of 11 various experiments related to the lectures.		
2041061	English-Bachelor Exam	Z,ZK	2
Mapped to the Comm	on European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	es, to take part in	discussions,
2041062	German - Bachelor Exam / FME	Z,ZK	2
Mapped to the Comm	on European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	es, to take part in	discussions,
2041063	French - Bachelor Exam /FME	Z,ZK	2
Mapped to the Comm	on European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	es, to take part in	discussions,
2041064	Spanish - Bachelor Exam / FME	Z,ZK	2
Mapped to the Comm	on European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	es, to take part in	discussions,
2041065	Russian - Bachelor Exam / FME	Z,ZK	2
Mapped to the Comm	on European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	es, to take part in	discussions,
2046068	English - Beginners	Z	2
	ulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (p		1
2046069	English - Beginners	Z	2
Mapped to the Comm	on European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding of general scientific terminology (professional language).	and use of basic	expressions
2046070	English - Lower Intermediate	7	2
	learly 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.	. 3	,
2046071	English - Lower Intermediate	Z	2
* *	non European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which a s		
	ne and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improvemen		
2046072	English - Upper Intermediate	Z	2
	anguage 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 -	B1.	
2046073	English - Upper Intermediate	Z	2
	mon European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional Englis lension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermedia knowledge.		
2046074	English - Advanced	Z	2
The aim: compreher	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.	and oral skills or	advanced
2046075	English - Advanced	Z	2
	mon European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in Eng		1
and active participati	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay, reading and comprehen	sion of popular-se	cientific and
2046076	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.	Z	2
2046076 Basic vocabu	German - Beginners llary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (pr	_	
2046077 Mapped to the level	German - Beginners 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 pressions of
2046078	German - Lower Intermediate Course	Z	2
Aim: Understanding	clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	Writing in a simple	e way about
2046079	German - Lower Intermediate Course	Z	2
	f Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a s me and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvemen		
	German - Upper Intermediate Course	Z	2
2046080	• • • • • • • • • • • • • • • • • • • •	a describe system	1
	dard 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.	o describe exper	iences and
	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts. German - Upper Intermediate Course	Z	2

2046082	German - Advanced Course	7	2
	of spoken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participatic	_	_
-	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific		
2046083	German - Advanced Course	7	2
	German - Advanced Course of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in G	_	1
	ation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehe	•	
and active particip	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.	rision of popular-so	cientine and
2046084		7	2
	French - Beginners	_	1
Understanding clea	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	j in a simple way al	bout lamiliar
0040005	topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046085	French - Beginners' Course	Z	2
	rel of Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which a		
	ne and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvemen	or professional lar	
2046086	French - Lower Intermediate Course	<u>Z</u>	2
Understanding clea	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	in a simple way al و	bout familiar
	topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046087	French - Lower Intermediate Course	Z	2
1 1	rel of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a		
	ne and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvemen		
2046088	French - Upper Intermediate	Z	2
Understanding st	andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	to describe experi	ences and
	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.		
2046089	French - Upper Intermediate	Z	2
Mapped to the lev	el of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students cor	nes across at work	, at school,
during free time, ar	nd talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understandi	ng general and tec	chnical texts.
2046090	French - Advanced	Z	2
	of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participation	n in discussions. Ex	
1	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific		
2046091	French - Advanced	7	2
	level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on to	_	1
1	h native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and u	-	
	currant issues and popular scientific and technical articles.		
2046096	Spanish - Beginners	7	2
	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Writing in a simple	
/ tim.onderstandin	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	witting in a simple	way about
2046097	Spanish - Beginners	Z	2
	ן באסטורים באין באסטורים באסט Ommon European Framework of Reference Level A1. Aim: Understanding clearly what is spoken about everyday situations which a	_	1
1 ''	ne and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement		
2046098	Spanish - Lower Intermediate	7	2
	Spanish - Lower Intermediate arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	n in a simple way a	_
Officerstanding clea	topics. Reading and comprehension of simple texts. Improvement of professional language.	j ili a sililpie way ai	bout iairiilai
2046000		Z	2
2046099	Spanish - Lower Intermediate	1	2
1	el of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a stude		
	nd speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of	T -	
2046117	Czech -Advanced	I . Z .	2
1	spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in dis	=	ing opinions.
	en skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to		_
2046118	Czech -Advanced	Z	2
	of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Cze	-	
active participati	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehens	sion of popular-scie	entific and
00.10.1.5	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.		_
2046119	Czech Language for Beginners I.	Z	2
	abulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p	rotessional langua	<u>, </u>
2046120	Czech Language for Beginners II.	Z	2
Mapped to the Con	nmon European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understandin	g and use of basic	expressions
	of general scientific terminology (professional language).		
2046125	Czech Lower Intermediate	Z	2
Aim: Understandir	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Writing in a simple	e way about
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046126	Czech Lower Intermediate	Z	2
Aim: Understandin	ig 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	e way about
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046127	Czech - Upper Intermediate	Z	2
	andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	to describe experi	ences and
	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.		
2046128	Czech - Upper Intermediate	Z	2
	nmon European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional C2	_	
1	nprehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on intern	-	·
	knowledge technical language.		-
2046135	Russian - Beginners	Z	2
	abulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p	_	

2046136	Russian - Beginners	Z	2
Mapped to the leve	el of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understanding of general scientific terminology (professional language)	and use of basic e	expressions
2046137	Russian - Lower Intermediate Course	Z	2
Understanding clea	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	g in a simple way al	bout familiar
	topics. Reading and comprehension of simple texts. Improvement of professional language.		_
2046138	Russian - Lower Intermediate Course	Z	2
1 ' '	ol of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a studer and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of I		
2046139	Russian - Upper Intermediate	7	2
	andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	to describe experi	
	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.		
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		- 1
2046141	ng about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understandi Russian - Advanced	7	2
	ן of spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participatio	∣ ∠ n in discussions. E	. – ,
1	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific		1
2046142	Russian - Advanced	Z	2
1	evel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to	-	
Communication wit	th native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and under the control of the control	inderstanding texts	concerning
2040455	currant issues and popular scientific and technical articles.	Z	
2046155	English Conversation Improving communicative skills in speaking on general topics and general technical topics.		2
2046156	English Conversation	Z	2
	Improving communicative skills in speaking on general topics and general technical topics.	_	_
2046161	Presentations in English	Z	2
	Preparing students to present in English on technical topics, with a possible co-operation with specialized departments.		
2046162	Presentations in German	Z	2
00.404.00	Preparation for presenting technical topics in German, possibly in cooperation with specialized departments.	_	
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
20.0.0.	Preparation for presenting technical topics in Russian, possibly in cooperation with specialized departments.	_	_
2046165	Presentations in Spanish	Z	2
	Preparation for presenting technical topics in Spanish, possibly in cooperation with specialized departments.		_
2046166	Presentations in Czech Preparing students to give presentations in English on technical topics, with a possible co-operation with specialized departm	Z ents	2
2121023	Thermodynamics	Z,ZK	5
	th a basic engineering approach to classical thermodynamics, heat transfer and compressible flow through nozzles and diffusers. Bas	1	rinciples are
1	y are applied mostly to systems behaving as ideal gases or typical vapours. Basic notions associated with ideal mixtures are studied with		
Heat transfer cov	ers fundamentals of conduction, convection and radiation. Heat exchangers are treated as an engineering application. Exercises and	labs are devoted to	o practical
2121500	problems and experimental technique.	Z,ZK	5
2121500 The basic course	Fluid Dynamics in fluid dynamics deals with fundamental laws of hydrostatics and hydrodynamics and their application on the basic problems, as 1		'
	s, simplified solution of unsteady flow. Basic information on more complicated problems (laminar and turbulent flow, boundary layer th		
	introduced as well.		
212A023	Thermodynamics A	ZK	2
	th a basic engineering approach to classical thermodynamics, heat transfer and compressible flow through nozzles and diffusers. Bases and all the statements of the statement of		
1	y are applied mostly to systems behaving as ideal gases or typical vapours. Basic notions associated with ideal mixtures are studied with ers fundamentals of conduction, convection and radiation. Heat exchangers are treated as an engineering application.Exercises and		
Tieat transier cov	problems and experimental technique	labs are devoted to	o practical
212A500	Fluid Dynamics A	ZK	3
	e in fluid dynamics deals with fundamental laws of hydrostatics and hydrodynamics and their application on the basic problems, as 11		
pressure losses	s, simplified solution of unsteady flow. Basic information on more complicated problems (laminar and turbulent flow, boundary layer th	eory, flow sepparat	trion) are
	introduced as well.		
2131002	Engineering Design II PS (Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface	Z,ZK	4
1	ips, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice the	-	
2131005	History of Technology	ZK	3
	human knowledge in the domain of science and technology in the retrospective of the developement of our civilization. Emphasis is	1	
technology with	special attention to the contribution of mining, iron metallurgy, power engineering, transportation and of the machine industry in the	narrower sense of t	the word.
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
	elements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, ke		
	on, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded		
pressed, splined ar	nd key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple asser	nbly units is also in	dispensable
	seminar work.		

	Engineering Design I.	KZ	2
2420502	Basic of technical representation, dimensioning and tolerancing	1/7	
2132503	Project nester global project of mechanical drive of conveyor composed of electric motor, elastic shaft coupling (respectively V-belt drive), ge	KZ	2
	d compensating double-row toothed shaft coupling (respectively roller chain drive). Second, alternative arrangement of projected mech	•	
0.0	and additional mechanical drives by means of only one single-stage warm gearbox Elaboration of 4 additional reports analysing proc		
-	chine element (gearbox shaft or gear). Besides project of mechanical drive must be elaborated design project of crank mechanism a		-
	single-cylinder piston engine.		
2133013	Engineering Design III.	Z	2
1	Design of assembly unit (draft drawing, detail drawing, assembly drawing, technical report)	_	
2133014	Engineering Design IV.	Z	2
2133025	Design	Z	4
	n, design calculations and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft coupl		
2133091	Presentation of Project	Z 7.71/	4
2141504	Electric Circuits and Electronics neory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of	Z,ZK	4
	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	•	
2141505	Electrical machines and drives	Z,ZK	4
	ectrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transi		onstruction
3-phase transform	mer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed	torque characteris	stic, speed
ontrol. Synchronou	us machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characte Low-voltage distribution system.		instrument
2144062	Technical Indonesian - Course II.	Z,ZK	3
04.5555	Basic of Indonesian Language for Student Exchange Program to Indonesia		-
2146060	Indonesian Language Course for Exchange	Z	2
04.40004	Basic of Indonesian Language for Student Exchange Program to Indonesia	7	
2146061	Technical Indonesian - Course I. Second part of Indonesian Language for Student Exchange Program to Indonesia	Z	2
2151002	Nuclear Power Principles	Z,ZK	5
	ntals of nuclear energy. Development and heat removal from core. Basic materials for nuclear reactors. Basic types of nuclear reacto		1
=	reactors. Fuel cycle. Reactor radiation, detection and quantification, determination of radiation doses. Problems of nuclear safety and		
2151090	Industry power and heating plant	Z,ZK	5
2151117	Design of Power Facilities	Z,ZK	5
,			
2151118	Distributed Energy	7.7K	5
2151118 2151158	Distributed Energy Principles of Refrigerating Technology and Heat Pumps	Z,ZK 7.7K	5
2151158	Principles of Refrigerating Technology and Heat Pumps	Z,ZK	5
2151158 2151165	÷.	Z,ZK Z,ZK	5 5
2151158 2151165 Classificiation and	Principles of Refrigerating Technology and Heat Pumps Hydraulic and Pneumatic Machines	Z,ZK Z,ZK construction, capa	5 city contro
2151158 2151165 Classificiation and and operation ir cor	Principles of Refrigerating Technology and Heat Pumps Hydraulic and Pneumatic Machines principles of operation of hydraulic machines. Criterions of hydrodynamical similarity. Hydraulic systems. Differend types of pumps,	Z,ZK Z,ZK construction, capa arious gases. Refr	5 5 city contro igerating
2151158 2151165 Classificiation and and operation ir cor	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	Z,ZK Z,ZK construction, capa arious gases. Refr nd distribution. Z,ZK	5 5 city contro
2151158 2151165 Classificiation and and operation ir cor 2151554 2151559	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, n various conditions. Theory of compression processes. Constructions, calculation, capacity control of compressors, operation with v mpressors. Accessories of a compressor stations and plants. Economical and ecological problems of a compressed air production and	Z,ZK Z,ZK construction, capa arious gases. Refr nd distribution. Z,ZK Z,ZK	5 5 city contro igerating
2151158 2151165 Classificiation and and operation in cor 2151554 2151559 2151702	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,ZK Z,ZK construction, capa arious gases. Refr nd distribution. Z,ZK	5 5 city contro
2151158 2151165 Classificiation and and operation ir cor 2151554 2151559 2151702 2152028	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 Energy Audit and Legislation	Z,ZK Z,ZK construction, capa arious gases. Refr nd distribution. Z,ZK Z,ZK Z,ZK KZ	5 city control igerating 5 5
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2151158 2151165 Classificiation and and operation ir cor 2151554 2151559 2151702 2152028 2152091 2153005	Principles of Refrigerating Technology and Heat Pumps Hydraulic and Pneumatic Machines disprinciples 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 Energy Audit and Legislation Deparmental Project Fundamentals of Energy Conversions	Z,ZK Z,ZK construction, capa arious gases. Refr nd distribution. Z,ZK Z,ZK Z,ZK KZ KZ KZ	5 5 city contro igerating 5 5 5 5
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2151158 2151165 Classificiation and and operation in cor 2151554 2151559 2151702 2152028 2152091 2153005 2153006 2153091 2153707	Principles of Refrigerating Technology and Heat Pumps Hydraulic and Pneumatic Machines disprinciples 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 Energy Audit and Legislation Deparmental Project Fundamentals of Energy Conversions Technology of Air Protection in Power Engineering Presentation of Project Project I.	Z,ZK Z,ZK construction, capa arious gases. Refr nd distribution. Z,ZK Z,ZK Z,ZK Z,ZK Z,ZK Z,Z Z Z Z	5 5 city contro igerating 5 5 5 2 1 2 4 5
2151158 2151165 Classificiation and and operation in cor 2151554 2151559 2151702 2152028 2152091 2153005 2153006 2153091 2153707 2153985	Principles of Refrigerating Technology and Heat Pumps Hydraulic and Pneumatic Machines disprinciples 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 Energy Audit and Legislation Departmental Project Fundamentals of Energy Conversions Technology of Air Protection in Power Engineering Presentation of Project Project I. Bachelor Thesis	Z,ZK Z,ZK construction, capa arious gases. Refr nd distribution. Z,ZK Z,ZK Z,ZK Z,ZK Z,ZK Z,Z KZ KZ Z Z Z	5 5 city contro igerating 5 5 5 2 1 2 4 5 5
2151158 2151165 Classificiation and and operation in cor 2151554 2151559 2151702 2152028 2152091 2153005 2153006 2153091 2153707 2153985	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, navious conditions. Theory of compression processes. Constructions, calculation, capacity control of compressors, operation with vampressors. 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 Energy Audit and Legislation Deparmental Project Fundamentals of Energy Conversions Technology of Air Protection in Power Engineering Presentation of Project Project I. Bachelor Thesis Project Student will be informed about basics of environmental engineering and creation of thermal comfort. Project Presentation	Z,ZK Z,ZK construction, capa arious gases. Refr nd distribution. Z,ZK Z,ZK Z,ZK Z,ZK Z,ZK Z,Z Z Z Z Z	5 5 city contro igerating 5 5 5 2 1 2 4 5 5
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2151158 2151165 Classificiation and and operation in cor 2151554 2151559 2151702 2152028 2152028 2152091 2153005 2153006 2153091 2153707 2153985 2162091 2163091 2163091	Principles of Refrigerating Technology and Heat Pumps Hydraulic and Pneumatic Machines disprinciples 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 Energy Audit and Legislation Deparmental Project Fundamentals of Energy Conversions Technology of Air Protection in Power Engineering Presentation of Project Project I. Bachelor Thesis Project Student will be informed about basics of environmental engineering and creation of thermal comfort. Project Presentation Processing and presentation of engaged theme Momentum, Mass and Heat Transfer Transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and the	Z,ZK Z,ZK construction, capa arious gases. Refr nd distribution. Z,ZK Z,ZK Z,ZK Z,ZK Z,ZK Z Z Z Z Z Z Z	5
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2182019			
2102010	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		
phase equilibrium	n, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochemical reactions.	mistry. Laboratory	practice is
	oriented upon the material properties measurement.		_
2182091	Project	KZ	2
0400004	Absolvent se seznámí se základy oboru Procesní technika.		
2183091	Project Presentation	Z	4
0400707	Preparation and presentation of a given project theme.	7	_
2183707	Project I.	Z	5
2402005	Project, dimensioning and designing solution of basic elements for process technology.	Z	5
2183985	Bachelor Thesis final individual work. This work checks ability of logical independent technical thinking and treatment with technical materials. There i	_	_
Dacrieioi triesis is	from previous study periods.	s applied acquired	Kilowieuge
2311101	Mechanics I.	Z,ZK	4
	with the basic concepts of statics. There are described the methods of solution of equilibrium of particles and rigid bodies and their sys		
	There are introduced the methods of description of position and motion of particles and rigid bodies.		
2311102	Mechanics II.	Z,ZK	4
	and of rigid bodies. Transformation matrix. Kinematics of concurrent movements. Motion: translation, rotation, general planar motion, s		rew motion,
	ion. Composition of mechanisms. Basic planar mechanisms. Analytical methods in kinematics of mechanisms - Trigonometric and vectors	=	
	in kinematics. Basic theory of gearing. Transmition mechanisms with geers. Strutting and seezing in mechanisms. Cable mechanisms	nisms.	
231A101	Mechanics I.A	ZK	2
231A102	Mechanics II.A	ZK	2
2321039	Materials Science II.	Z,ZK	4
	etallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and the	1 '	processing,
	technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of material	ials.	
2322029	Materials Science I.	KZ	3
History and prese	ent state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, defor	mation, recrystalliz	zation and
fracture of mate	erials, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, in	ron-carbon phase o	diagram.
2331068	Technology I.	Z,ZK	5
Foundry properties	of metals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of form		mi-products,
	heating-up. Cutting. Cold and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. Brazing. Surface treatment	ts.	
2333038	Fundamentals of Technology I.	Z	3
	ses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technology		1
	sting: modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming technology.		
Free and drop fo	rging. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of well	ding. Fusion weldir	ng: Flame
2244244	welding and arc welding with coated electrodes. Thermal cutting.	7 714	
2341014	Technology II.	Z,ZK	5
mechanics of chip for	ormation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining econor		l
		mics. Automation o	f processes,
2262001	programming of manufacture. Engineering metrology. Assembly techniques. Introduction to process planing.	I	
2362091	programming of manufacture. Engineering metrology. Assembly techniques. Introduction to process planing. Project	KZ	2
2363091	programming of manufacture. Engineering metrology. Assembly techniques. Introduction to process planing. Project Project Presentation	KZ Z	2 4
2363091 2371047	programming of manufacture. Engineering metrology. Assembly techniques. Introduction to process planing. Project Project Presentation Automatic Control	KZ Z Z,ZK	2 4 5
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2383009	Communication and Dealing with People	Z	2		
Human communic	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.				
2383019	Philosophical Issues Of Individual and Science	Z	2		

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