Study plan

Name of study plan: 08 40 45 52 BSTR KPP 2012 K základ

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

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

Required credits: 258

Elective courses credits: -21 Sum of credits in the plan: 237 Note on the plan: první pokus

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 211

The role of the block: P

Code of the group: 12B-KMENK TZI STR

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

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

Credits in the group: 156

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2371047	Automatic Control	Z,ZK	5	3P+15C+05L	*	Р
2182019	Chemistry Radek Šulc, Martin Dostál, Vojt ch B lohlav, Jan Sko ilas, Adam Krupica, Filip Randák Radek Šulc Radek Šulc (Gar.)	KZ	3	2P+1C	1	Р
2131512	Machine Elements and Mechanisms I. František Lopot	Z,ZK	6	3P+2C	*	Р
2131026	Machine Elements and Mechanisms II František Lopot	ZK	3	3P+0C	*	Р
2141504	Electric Circuits and Electronics Stanislava Papežová, Jan Chyský, Jaroslav Novák, Lukáš Novák Zuzana Sedlecká Jan Chyský (Gar.)	Z,ZK	4	2P+08C+1.4L	*	Р
2141505	Electrical machines and drives Jaroslav Novák	Z,ZK	4	2P+06C+14L	*	Р
2021041	Physics I.	Z,ZK	7	4P+1L	*	Р
2021025	Physics II.	Z,ZK	4	1P+2L	3	Р
2133025	Design František Lopot	Z	4	0P+4C	*	Р
2011021	Constructive Geometry	Z,ZK	6	3P+2C	*	Р
2381054	Management and Economics of the Enterprise	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 Stanislav Kra mar	Z,ZK	5	2P+2C	*	Р
2311101	Mechanics I. Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Zbyn k Šika, Zbyn k Šika Zbyn k Šika (Gar.)	Z,ZK	4	2P+2C	*	Р
2311102	Mechanics II. Václav Bauma	Z,ZK	4	2P+2C	*	Р

2322029 Materials Science I. Jana Sobotová Materials Science II. Ji í Cejp, Jakub Horník, Jana Sobotová, Elena ižmárová, Eliška Gal íková, Pavlína Hájková, Jakub Horváth, Stanislav Krum, Vladimír Mára, Jana Sobotová Jana Sobotová (Gar.) Numerical Mathematics	KZ Z,ZK	3	2P+1L	2	Р
2321039 Ji í Cejp, Jakub Horník, Jana Sobotová, Elena ižmárová, Eliška Gal íková, Pavlína Hájková, Jakub Horváth, Stanislav Krum, Vladimír Mára, Jana Sobotová Jana Sobotová (Gar.)	Z,ZK				
Numerical Mathematics		4	2P+2L	*	Р
2011049 Numerical Mathematics Petr Svá ek	Z,ZK	4	2P+2C	4	Р
2012037 Computer Graphics	KZ	3	1P+1C	*	Р
2372041 Computer Support for Study Vladimír Hlavá	KZ	3	1P+1C	*	Р
2181026 Momentum, Mass and Heat Transfer	Z,ZK	5	3P+1C	*	Р
2131002 Engineering Design II	Z,ZK	4	2P+3C	2	Р
Engineering Design III. 2133013 Engineering Design III. Št pán Tichý, Jan Hoidekr, Jan Kanaval, František Lopot, David Skalický, Roman Uhlí Jan Kanaval Jan Kanaval (Gar.)	Z	2	0P+2C	Z	Р
2133014 Engineering Design IV. František Lopot	Z	2	0P+2C	L	Р
2372083 Measurement in Engineering Martin Novák, Vladimír Hlavá Martin Novák Martin Novák (Gar.)	KZ	3	1P+0C+2L	*	Р
K331068 Technology I	Z,ZK	5	16B	*	Р
K341014 Technology II.	Z,ZK	5	8KP+8KC	*	Р
2012035 Algorithmization and Programming Fundamentals Petr Svá ek	KZ	4	1P+2C	*	Р
2153005 Fundamentals of Energy Conversions	Z	1	1P+1C	*	Р
2383001 Fundamentals of Law	Z	2	1P+1C	*	Р
MATLAB software as a common platform of control engineers. 2182019 Chemistry				ΚΖ	3
General chemistry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of th phase equilibrium, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydroriented upon the material properties measurement.	•		roperties of ma	tter, thermo	odynamics,
2131512 Machine Elements and Mechanisms I.			Z	,ZK	6
Joints and joining elements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use (belt, chain, friction, gear drives). Seminars are devoted to practical individual solution of simple design projects - tas pressed, splined and key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of mach	sks with motion	screws, pr	eloaded conne	ecting bolts,	clamped,
seminar work.				71.6	
2131026 Machine Elements and Mechanisms II Preliminary design, design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections	ons, elements of	crank me	1	ZK ines and the	3 eir accessorie
and fittings.					
2141504 Electric Circuits and Electronics Introduction into theory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient stat	es in circuits wit	h accumu		ZK	4
Introduction into electronics. Principle and typical parameters of basic semiconductor components. Application in ele					
amplifier). Analogue and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converte	ers, microproces	sor.	1 -	717	
2141505 Electrical machines and drives AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hys	steresis loop. Ele	ectromagn		,ZK r. principle.	4 construction
3-phase transformer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, ope	-	_			
control. Synchronous machines. DC-machines, principle, parameters, operating conditions, construction, starting, sp	eed control, spe	ed-torque	characteristic.	Low-voltag	ge instrument
Low-voltage distribution system. 2021041 Physics I.			Z	ZK	7
Kinematics and dynamics of a particle motion. Principle of conservation of energy. System of particles, centre of mas			elastic propert	ies of bodie	s. Oscillation
waves. Fluid mechanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, cur		•			
insulators. Magnetic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random en measurements of 11 various experiments related to the lectures.	iois, unicertainty	oi direct a	and manect me	asurernent	.s, regression
2021025 Physics II.			Z.	,ZK	4
Faraday's law of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometric			ties of electrom	agnetic wa	
of radiation with matter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of pai Spectra, x-rays, ;laser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Lab			· ·	=	

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

Z,ZK

6

Design, design calculations and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft couplings and clutches.

The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.

2133025

Design

Constructive Geometry

2381054	Management and Economics of the Enterprise	Z,ZK	4				
The subject is intended	to teach the students of the Faculty of Mechanical Engineering the basic economic starting points necessary for technical reas	oning and to help t	hem understand				
the basic relationships between economic quantities costs - revenues, expenses - incomes and other basic economic terms. The goal is for the audience to be able to communicate							
_	with economists in organizations. every product or service is valued at a selling price and therefore it is necessary to understand the simple costing of products and services. Every						
	r reports and should understand the basic structure of financial statements. As a future manager, he will compile and approv		-				
	ill learn basic managerial functions and their content. Furthermore, they will learn how to use network analysis in project ma n the applications of multi-criteria decision-making. The basics of marketing and strategic management will be introduced.	nagement. For dec	cision-making				
2011056	Mathematics I	Z,ZK	8				
	mphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connec	1 '	_				
. •	procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic area		•				
of a matrix, Taylor polyn	omial, integral as a limit function, integration of some special functions.	-	-				
2011062	Matematika II.	Z,ZK	8				
Open and closed set, be	bundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differentiability of the control of the contr	ential operators div	/ (divergence)				
i i	ion given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral.						
	ndrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and G		•				
Gauss-Ostrogradskij the	line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a ve	ctor field through a	a surface. The				
2011009	Mathematics III	Z,ZK	5				
	n ordinary differential equation and infinite series.	Z,ZN	5				
2311101	Mechanics I.	Z,ZK	4				
	he basic concepts of statics. There are described the methods of solution of equilibrium of particles and rigid bodies and thei		•				
	e methods of description of position and motion of particles and rigid bodies.	. cyclome man and					
2311102	Mechanics II.	Z.ZK	4				
	of rigid bodies. Transformation matrix. Kinematics of concurrent movements. Motion: translation, rotation, general planar motic	, ,	n, screw motion,				
general spatial motion.	Composition of mechanisms. Basic planar mechanisms. Analytical methods in kinematics of mechanisms - Trigonometric and	vector method. Gr	aphical methods				
in kinematics. Basic the	ory of gearing. Transmition mechanisms with geers. Strutting and seezing in mechanisms. Cable mechanisms.						
2322029	Materials Science I.	KZ	3				
	te of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, del						
	ucture and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, in						
2321039	Materials Science II.	Z,ZK	4				
	urgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal ar	nd thermo-mechar	nical processing,				
	oys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materials.	7.71/	4				
2011049	Numerical Mathematics	Z,ZK	4				
2011049 Numerical solution of sy	Numerical Mathematics stems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical solution of nonlinear algebraic equations.		•				
2011049 Numerical solution of sy equations, initial and bo	Numerical Mathematics stems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Nume undary value problems. Numerical solution of basic linear partial differential equations by finite difference method.	rical solution of ord	dinary differential				
2011049 Numerical solution of sy equations, initial and bo 2012037	Numerical Mathematics stems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Nume undary value problems. Numerical solution of basic linear partial differential equations by finite difference method. Computer Graphics	rical solution of ord	dinary differential				
2011049 Numerical solution of sy equations, initial and bo 2012037 2372041	Numerical Mathematics stems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Nume undary value problems. Numerical solution of basic linear partial differential equations by finite difference method. Computer Graphics Computer Support for Study	rical solution of ord	dinary differential 3 3				
2011049 Numerical solution of sy equations, initial and bo 2012037 2372041 The course introduces s	Numerical Mathematics stems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Nume undary value problems. Numerical solution of basic linear partial differential equations by finite difference method. Computer Graphics	KZ KZ vith the use of com	dinary differential 3 3 puters. Students				
2011049 Numerical solution of sy equations, initial and bo 2012037 2372041 The course introduces s	Numerical Mathematics stems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Nume undary value problems. Numerical solution of basic linear partial differential equations by finite difference method. Computer Graphics Computer Support for Study tudents into creating technical and professional documents on computers or Web and into realizing technical computations we	KZ KZ vith the use of com	dinary differential 3 3 puters. Students				
2011049 Numerical solution of sy equations, initial and bo 2012037 2372041 The course introduces s gain practical skills by c 2181026	Numerical Mathematics stems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Nume undary value problems. Numerical solution of basic linear partial differential equations by finite difference method. Computer Graphics Computer Support for Study tudents into creating technical and professional documents on computers or Web and into realizing technical computations were atting an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical	KZ KZ vith the use of com	3 3 puters. Students ge.				
2011049 Numerical solution of sy equations, initial and bo 2012037 2372041 The course introduces s gain practical skills by c 2181026 Fundamentals of transp time distributions in confi	Numerical Mathematics stems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Nume undary value problems. Numerical solution of basic linear partial differential equations by finite difference method. Computer Graphics Computer Support for Study tudents into creating technical and professional documents on computers or Web and into realizing technical computations wereating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical Momentum, Mass and Heat Transfer ort phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechani inuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and	KZ KZ with the use of com l-based WWW pag Z,ZK cal energy equation	3 puters. Students je. 5 on. Residence				
2011049 Numerical solution of sy equations, initial and bo 2012037 2372041 The course introduces s gain practical skills by c 2181026 Fundamentals of transp time distributions in cont systems. Mass transfer	Numerical Mathematics stems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical value problems. Numerical solution of basic linear partial differential equations by finite difference method. Computer Graphics Computer Support for Study students into creating technical and professional documents on computers or Web and into realizing technical computations were treating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical momentum, Mass and Heat Transfer or the phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical mouses systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and by molecular diffusion, convection, with chemical reactions and interphase mass transfer.	KZ KZ ith the use of com l-based WWW pag Z,ZK cal energy equation	3 3 puters. Students ge. 5 on. Residence Multicomponent				
2011049 Numerical solution of sy equations, initial and bo 2012037 2372041 The course introduces s gain practical skills by c 2181026 Fundamentals of transp time distributions in cont systems. Mass transfer 2131002	Numerical Mathematics stems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Nume undary value problems. Numerical solution of basic linear partial differential equations by finite difference method. Computer Graphics Computer Support for Study Itudents into creating technical and professional documents on computers or Web and into realizing technical computations were atting an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical momentum, Mass and Heat Transfer ort phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical inuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and by molecular diffusion, convection, with chemical reactions and interphase mass transfer. Engineering Design II	KZ KZ ith the use of com based WWW pag Z,ZK cal energy equation thermal radiation.	3 3 puters. Students ge. 5 on. Residence Multicomponent				
2011049 Numerical solution of sy equations, initial and bo 2012037 2372041 The course introduces s gain practical skills by c 2181026 Fundamentals of transp time distributions in cont systems. Mass transfer 2131002 Principles of ISO GPS (Numerical Mathematics stems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical value problems. Numerical solution of basic linear partial differential equations by finite difference method. Computer Graphics Computer Support for Study students into creating technical and professional documents on computers or Web and into realizing technical computations were ating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical momentum, Mass and Heat Transfer or phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and by molecular diffusion, convection, with chemical reactions and interphase mass transfer. Engineering Design II Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surfice.	KZ KZ vith the use of com l-based WWW pag Z,ZK cal energy equation thermal radiation.	3 3 puters. Students ge. 5 on. Residence Multicomponent 4 etrical tolerance,				
2011049 Numerical solution of sy equations, initial and bo 2012037 2372041 The course introduces s gain practical skills by c 2181026 Fundamentals of transp time distributions in cont systems. Mass transfer 2131002 Principles of ISO GPS (dimensional loops, toler	Numerical Mathematics stems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical value problems. Numerical solution of basic linear partial differential equations by finite difference method. Computer Graphics Computer Support for Study students into creating technical and professional documents on computers or Web and into realizing technical computations wereating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical Momentum, Mass and Heat Transfer ort phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechani initious systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and by molecular diffusion, convection, with chemical reactions and interphase mass transfer. Engineering Design II Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surfancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice the	KZ KZ vith the use of com l-based WWW pag Z,ZK cal energy equation thermal radiation. Z,ZK ace texture, geometric knowledge from	3 3 puters. Students ge. 5 on. Residence Multicomponent 4 etrical tolerance, n lectures.				
2011049 Numerical solution of sy equations, initial and bo 2012037 2372041 The course introduces s gain practical skills by c 2181026 Fundamentals of transp time distributions in cont systems. Mass transfer 2131002 Principles of ISO GPS (dimensional loops, toler 2133013	Numerical Mathematics stems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical value problems. Numerical solution of basic linear partial differential equations by finite difference method. Computer Graphics Computer Support for Study students into creating technical and professional documents on computers or Web and into realizing technical computations wereating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical Momentum, Mass and Heat Transfer or the phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechani initious systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and by molecular diffusion, convection, with chemical reactions and interphase mass transfer. Engineering Design II Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surfancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice the Engineering Design III.	KZ KZ vith the use of com l-based WWW pag Z,ZK cal energy equation thermal radiation.	3 3 puters. Students ge. 5 on. Residence Multicomponent 4 etrical tolerance,				
2011049 Numerical solution of sy equations, initial and both 2012037 2372041 The course introduces signing practical skills by compared to the course introduces signing practical skills by compared to the course of transposition of transpositio	Numerical Mathematics stems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical value problems. Numerical solution of basic linear partial differential equations by finite difference method. Computer Graphics Computer Support for Study students into creating technical and professional documents on computers or Web and into realizing technical computations were treating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical Momentum, Mass and Heat Transfer or the phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechani inition systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and by molecular diffusion, convection, with chemical reactions and interphase mass transfer. Engineering Design II Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surfancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice the Engineering Design III. (draft drawing, detail drawing, assembly drawing, technical report)	KZ KZ // KZ // KZ // KZ // ith the use of com // based WWW pag Z,ZK cal energy equation // thermal radiation. Z,ZK ace texture, geometric knowledge from Z	3 3 puters. Students ge. 5 on. Residence Multicomponent 4 etrical tolerance, n lectures. 2				
2011049 Numerical solution of sy equations, initial and both 2012037 2372041 The course introduces signify practical skills by compared to the systems. Mass transfer 2131002 Principles of ISO GPS (dimensional loops, toler 2133013 Design of assembly unit 2133014	Numerical Mathematics stems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numer undary value problems. Numerical solution of basic linear partial differential equations by finite difference method. Computer Graphics Computer Support for Study students into creating technical and professional documents on computers or Web and into realizing technical computations wereating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical Momentum, Mass and Heat Transfer or the phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechani inition systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and by molecular diffusion, convection, with chemical reactions and interphase mass transfer. Engineering Design II Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surfancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice the Engineering Design III. Engineering Design III. Engineering Design IV.	KZ KZ Vith the use of com I-based WWW page Z,ZK cal energy equation thermal radiation. Z,ZK ace texture, geometr knowledge from Z	3 3 puters. Students ge. 5 on. Residence Multicomponent 4 etrical tolerance, n lectures. 2				
2011049 Numerical solution of sy equations, initial and both 2012037 2372041 The course introduces signification practical skills by compared to the systems. Mass transfer 2131002 Principles of ISO GPS (dimensional loops, toler 2133013 Design of assembly unit 2133014 2372083	Numerical Mathematics stems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical value problems. Numerical solution of basic linear partial differential equations by finite difference method. Computer Graphics Computer Support for Study students into creating technical and professional documents on computers or Web and into realizing technical computations wereating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical Momentum, Mass and Heat Transfer ort phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechani initial initial diffusion, convection, with chemical reactions and interphase mass transfer. Engineering Design II Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surfancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice the Engineering Design III. (draft drawing, detail drawing, assembly drawing, technical report) Engineering Design IV. Measurement in Engineering	KZ KZ Vith the use of com V-based WWW page V-based WWW pa	3 3 puters. Students ge. 5 on. Residence Multicomponent 4 etrical tolerance, n lectures. 2 2 3				
2011049 Numerical solution of sy equations, initial and both 2012037 2372041 The course introduces signify practical skills by compared to the systems. Mass transfer 2131002 Principles of ISO GPS (dimensional loops, toler 2133013 Design of assembly unit 2133014 2372083 Overview of sensor principles of solutions of the systems.	Numerical Mathematics stems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numer undary value problems. Numerical solution of basic linear partial differential equations by finite difference method. Computer Graphics Computer Support for Study students into creating technical and professional documents on computers or Web and into realizing technical computations wereating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical Momentum, Mass and Heat Transfer or the phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechani inition systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and by molecular diffusion, convection, with chemical reactions and interphase mass transfer. Engineering Design II Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surfancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice the Engineering Design III. Engineering Design III. Engineering Design IV.	KZ KZ Vith the use of com V-based WWW page V-based WWW pa	3 3 puters. Students ge. 5 on. Residence Multicomponent 4 etrical tolerance, n lectures. 2 2 3				
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Basic orientation in legal system is a necessary part of professional equipment of each expert with university degree. The aim of this course is to provide a view into the Czech Legal Order, particular sources of law and system of law (branch of law), using tutorials, lectures, specialised literature and significant legal regulations. It is necessary for students to know our legal institutions, that will be regularly in touch with, especially during their professional career and to learn how to work with the collection of laws. At the same time the course leads students to know some practical habits and processes while putting the law on, especially in domain of contracts and other important legal relationships and to make them ready to prepare professional presentations and to understand basic structures between law and engineering

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

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

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

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

Credits in the group: 6

Note on the group:

	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
K333038	Fundamentals of Technology I.	Z	3	8B	*	Р

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

K333038 Fundamentals of Technology I. Z 3

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

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

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

Requirement credits in the group: In this group you have to gain 22 credits

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

Credits in the group: 22 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
2351110	Modeling and simulation I.	Z,ZK	5	2P+2C+0L	*	Р
2211581	Transmissions	Z,ZK	5	2P+2C	*	Р
2311073	Simulation of Mechanical Systems	Z,ZK	6	2P+3C	*	Р

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

2351110	Modeling and simulation I.	Z,ZK	5				
The subject is focused on explanation of the design of machine tool axis by individual parts and components.							
2211581	Transmissions	Z,ZK	5				
The course provides a	general summary of transmissions for various applications which the student in the specialization designer-calculator meets.	The gearing basic	s of production				
and transport machines will be briefly explained, important calculations will be discussed in more detail on the examples of transmission devices of motor vehicles.							
2311073	Simulation of Mechanical Systems	Z,ZK	6				

Code of the group: 12BS*7Q-KPP-OP

Name of the group: 13 2012 BSTR 7.sem 1povvol KPP-OP

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:

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
2112092	Department Project	KZ	4	0P+6C	*	Р
2122092	Department Project	KZ	4	0P+6C	*	Р
2352092	Specialization Project	KZ	4	0P+6C+0L	*	Р
2212092	Project	KZ	4	0P+4C	Z	Р
2312092	Department project Michael Valášek	KZ	4	0P+6C	*	Р
2132092	Project František Lopot	KZ	4	0P+6C	*	Р

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

2112092	Department Project	KZ	4				
2122092	Department Project	KZ	4				
The content of the subje	The content of the subject is given by the topic of bachelor's work after consultion with supervisor of bachelor, work or the tutor of the department.						

	- P	1	1				
The course is focused on elaboration of individual work, which student solves in close cooperation with the head of the assigned topic. The student will get acquainted with the problems							
of manufacturing machines and the equipment, respectively its parts according to the orientation of their work, and during regular weekly consultations with the supervisor proceed in							
professional solution of the problem. At the end of the semester students present their work on small oral examination in which they present the work performed, the coherence and							
meaning.							
2212092	Project	KZ	4				

meaning.			
2212092	Project	KZ	4
Basic practical skills of	'		
2312092	Department project	KZ	4
Individual asignment		•	
2132092	Project	KZ	4

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*8P-KPP

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

Specialization Project

Requirement credits in the group: In this group you have to gain 23 credits

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

Credits in the group: 23 Note on the group:

2352092

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
2131120	Design of Steel Structures	Z,ZK	6	2P+2C	*	Р
2351117		Z,ZK	5	2P+0C+2L	*	Р

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

2131120	Design of Steel Structures	Z,ZK	6		
2351117		Z,ZK	5		
Importance of fluid med	nportance of fluid mechanisms and drives, principle, design and use. Divided on two parts - Hydraulics and Pneumatics.				

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 15

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

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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
2383009	Communication and Dealing with People Jan Horeic Jan Horeic (Gar.)	Z	2	1P+1C	*	PV

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

2383009	Communication and Dealing with People	Z	2
Human communication	represents an irreplaceable phenomenon in human activity, as it is present in practically all of his activities. The same applied	s (with specific mo	odifications) to
the activities of manage	rs. So you can't not communicate - you can only communicate hadly well and excellently		

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

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

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

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

Credits in the group: 2

Note on the group:

Součástí tohoto bakalářského studijního programu je povinnost vykonat zkoušku z jednoho cizího jazyka. Student ji může vykonat kdykoliv v průběhu studia. Administrativně je předmět přiřazen ke studijnímu

plánu čtvrtého semestru druhého ročníku, neboť se předpokládá, že si student během předcházejících semestrů nejprve doplňuje v jazykových kurzech (volitelných předmětech) jazykové znalosti zejména v oblasti odborné terminologie

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

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

011K & 1210						
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 diff	iculties, to take par	rt in discussions,			
to write a summary,	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 Comm	on 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,	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 Comm	on 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,	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 Comm	on 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,	report and an essay, to read technical texts, to master grammar at advanced level.					
2041064	Spanish - Bachelor Exam / FME	Z,ZK	2			
Mapped to the Comm	Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions,					
to write a summary,	report and an essay, to read technical texts, to master grammar at advanced level.					

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

Name of the group: 10 2012 BSTR 6. sem oborové projekty

Requirement credits in the group: In this group you have to gain 2 credits

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

Credits in the group: 2

Note on the group:

Student si vybere předmět příslušný oboru, který studuje

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2372091	Project	KZ	2	0P+2C	*	PV
2362091	Project	KZ	2	0P+2C	*	PV
2152091	Deparmental Project	KZ	2	0P+2C	*	PV
2182091	Project	KZ	2	0P+2C	*	PV

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

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

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

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

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

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

Credits in the group: 4

Note on the group:

2363091 nesepsán Student si vybere předmět příslušný oboru, který studuje

	<u> </u>					
Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2153091	Presentation of Project	Z	4	4B	*	PV
2363091	Project Presentation	Z	4	4B		PV
2373091	Project presentation	Z	4	4B	*	PV
2183091	Project Presentation	Z	4	0P+4C	*	PV

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

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

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

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

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	ZK	3	0P+0C	*	V
201A056	Mathematics I.A Radka Keslerová	ZK	4	0P+0C	*	V
201A062	Mathematics II.A Radka Keslerová	ZK	4	0P+0C	*	V
201A009	Mathematics III.A Stanislav Kra mar	ZK	2	0P+0C	*	V
201A049	Numerical Mathematics A Lud k Beneš	ZK	2	0P+0C	*	V

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

202A041	Physics I.	۷n) 3	ı
Kinematics and dynamic	es of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic	properties of boo	lies. Oscillations,	l
waves. Fluid mechanics	. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co	nductors, semico	nductors,	l
insulators. Magnetic field	d. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and inc	lirect measureme	nts, regression,	l
measurements of 11 va	rious experiments related to the lectures.			l

202A025 | Physics II.A | ZK | 2
Faraday's law of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic waves. Interaction

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

Spectra, x-rays, ;laser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 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	'				
201A062	Mathematics II.A	ZK	4			
Open and closed set, b	oundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differe	ential operators div	(divergence)			
and curl (rotation). Fund	tion given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integ	ral, Fubini theorem	n. Transformation			
of integrals to polar, cyl	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 th	eorem.					

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

Mathematics III.A

Name of the group: 05 2012 doporu ené seminá e

Numerical Mathematics A

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

Credits in the group: 0

201A009

201A049

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

ZK

ZK

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

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

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

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

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

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

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

Credits in the group: 0 Note on the group:

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

2046069	English - Beginners	Z	2	0P+2C	L	V
2046126	Veronika Kratochvilová Ilona Šimice Czech Lower Intermediate	 	2	0P+2C		
	Jaroslava Kommová Czech Lower Intermediate				L	V
2046125	Jaroslava Kommová	Z	2	0P+2C	Z	V
2046118	Czech -Advanced Jaroslava Kommová	Z	2	0P+2C	L	V
2046117	Czech -Advanced Jaroslava Kommová	Z	2	0P+2C	Z	V
2046127	Czech - Upper Intermediate Jaroslava Kommová	Z	2	0P+2C	Z	V
2046128	Czech - Upper Intermediate Jaroslava Kommová	Z	2	0P+2C	L	V
2046119	Czech Language for Beginners I. Jaroslava Kommová	Z	2	0P+2C	Z	V
2046120	Czech Language for Beginners II. Jaroslava Kommová	Z	2	0P+2C	L	V
2046086	French - Lower Intermediate Course Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046087	French - Lower Intermediate Course Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	L	V
2046091	French - Advanced	Z	2	0P+2C	L	V
2046090	Dušana Jirovská Dušana Jirovská Dušana Jirovská (Gar.) French - Advanced Michaela Schusová, Dušana Jirovská, Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046089	French - Upper Intermediate	Z	2	0P+2C	L	V
2046088	Dušana Jirovská Dušana Jirovská Dušana Jirovská (Gar.) French - Upper Intermediate Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046084	French - Beginners Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046085	French - Beginners' Course Dušana Jirovská Michaela Schusová Dušana Jirovská (Gar.)	Z	2	0P+2C	L	V
2146060	Indonesian Language Course for Exchange	Z	2	0P+2C	*	V
2146061	Technical Indonesian - Course I.	Z	2	0P+2C	Z	V
2144062	Technical Indonesian - Course II.	Z,ZK	3	1P+2C	L	V
2046078	German - Lower Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046079	German - Lower Intermediate Course Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046083	German - Advanced Course Jaroslava Kommová, Eliška Vítková, Petr Laurich Jaroslava Kommová Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046082	German - Advanced Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046081	German - Upper Intermediate Course Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046080	German - Upper Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046076	German - Beginners Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Petr Laurich (Gar.)	Z	2	0P+2C	Z	V
2046077	German - Beginners Jaroslava Kommová, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046161	Presentations in English Michaela Schusová	Z	2	0P+2C	*	V
2046166	Presentations in Czech Jaroslava Kommová	Z	2	0P+2C	*	V
2046162	Presentations in German Jaroslava Kommová, Eliška Vítková, Petr Laurich Jaroslava Kommová Jaroslava Kommová (Gar.)	Z	2	0P+2C	*	V
	1			+	-	-
2046164	Presentations in Russian Dušana Jirovská	Z	2	0P+2C	*	V

2046165	Presentations in Spanish Eliška Vítková	Z	2	0P+2C	*	V
2046137	Russian - Lower Intermediate Course Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046138	Russian - Lower Intermediate Course Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046141	Russian - Advanced Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046142	Russian - Advanced Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046140	Russian - Upper Intermediate Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046139	Russian - Upper Intermediate Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046136	Russian - Beginners Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046135	Russian - Beginners Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046099	Spanish - Lower Intermediate Jaime Andrés Villagómez Eliška Vítková Jaime Andrés Villagómez (Gar.)	Z	2	0P+2C	L	V
2046098	Spanish - Lower Intermediate Michaela Schusová, Eliška Vítková, Jaime Andrés Villagómez Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046096	Spanish - Beginners Michaela Schusová, Eliška Vítková, Jaime Andrés Villagómez Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046097	Spanish - Beginners Jaime Andrés Villagómez Jaime Andrés Villagómez (Gar.)	Z	2	0P+2C	L	V

Characteristics of the courses of this group of Study Plan: Code=12B**1V-DOP ZJK Name=06 2012 doporu ené základní jazykové kurzy a prezentace 2046155 English Conversation Z 2

2046155	English Conversation	Z	2
Improving communication	ative skills in speaking on general topics and general technical topics.	•	
2046156	English Conversation	Z	2
Improving communication	ative skills in speaking on general topics and general technical topics.	,	
2046071	English - Lower Intermediate	Z	2
Mapped to the Comm	non European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations w	hich a student meets	either at school
or at his/her free time	e and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Impro	vement of profession	al language.
2046070	English - Lower Intermediate	Z	2
Aim: Understanding of	clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking abou	t them. Writing in a si	mple way about
familiar topics. Readir	ng and comprehension of simple texts. Improvement of professional language. A1 - A2.		
2046074	English - Advanced	Z	2
·	sion of spoken English as well as lectures given in English without great difficulties and active participation in a discussion.		
•	a summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student	s field of studies with	out difficulties.
Grammar structures	on advanced level. B1 - B2.		
2046075	English - Advanced	Z	2
Mapped to the Comm	non European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given	i in English without gr	eat difficulties
• •	non European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English 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 com		
and active participation	· · · · · · · · · · · · · · · · · · ·		
and active participation	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and com		
and active participation scientific articles or telegraphic actions and active participation and active participation and active participation active participation and active participation ac	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and comexts from student's field of studies without difficulties. Grammar structures on advanced level. English - Upper Intermediate	nprehension of popula	ar-scientific and
and active participation scientific articles or telegraphic actions and active participation and active participation and active participation active participation and active participation ac	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and corrects from student's field of studies without difficulties. Grammar structures on advanced level. English - Upper Intermediate	nprehension of popula	ar-scientific and
and active participation scientific articles or telegraphic actions and active participation and active participation and active participation active participation and active participation ac	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and comexts from student's field of studies without difficulties. Grammar structures on advanced level. English - Upper Intermediate	nprehension of popula	ar-scientific and
and active participatic scientific articles or to 2046072. The aim is to extend labout topics of every 2046073.	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and comexts from student's field of studies without difficulties. Grammar structures on advanced level. English - Upper Intermediate language skills taking into consideration professional English and common professional terminology. Comprehension of standay life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1.	prehension of popular Z dard English speech	ar-scientific and 2 and conversatio
and active participatic scientific articles or to 2046072 The aim is to extend labout topics of every 2046073 Mapped to the Comm	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and comexts from student's field of studies without difficulties. Grammar structures on advanced level. English - Upper Intermediate	Type Pension of populary Zero Broglish speech	2 and conversatio
and active participatic scientific articles or to 2046072 The aim is to extend leabout topics of everyon 2046073 Mapped to the Commeterminology. Comprehenowledge.	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and comests from student's field of studies without difficulties. Grammar structures on advanced level. English - Upper Intermediate	Z dard English speech Z Il English and commo	2 and conversatio 2 and professional adening gramma
and active participatic scientific articles or to 2046072 The aim is to extend leabout topics of everyon 2046073 Mapped to the Commeterminology, Comprehenowledge, 2046068	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and consexts from student's field of studies without difficulties. Grammar structures on advanced level. English - Upper Intermediate	T Z Idard English speech Z Id English and commontermediate level. Broad	2 and conversatio 2 on professional adening gramma
and active participatic scientific articles or to 2046072 The aim is to extend leabout topics of everyon 2046073 Mapped to the Commeterminology, Comprehenowledge, 2046068	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and comexts from student's field of studies without difficulties. Grammar structures on advanced level. English - Upper Intermediate	T Z Idard English speech Z Id English and commontermediate level. Broad	2 and conversatio 2 on professional adening gramma
and active participatic scientific articles or to 2046072 The aim is to extend leabout topics of everyon 2046073 Mapped to the Commeterminology, Comprehenowledge, 2046068	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and consexts from student's field of studies without difficulties. Grammar structures on advanced level. English - Upper Intermediate	T Z Idard English speech Z Id English and commontermediate level. Broad	2 and conversatio 2 on professional adening gramma
and active participatic scientific articles or to 2046072 The aim is to extend labout topics of every 2046073 Mapped to the Commeterminology. Comprehensiveledge. 2046068 Aim: Basic vocabularic 2046069	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and contexts from student's field of studies without difficulties. Grammar structures on advanced level. English - Upper Intermediate	T Z Idard English speech Z Id English and commontermediate level. Broadler Z gy (professional language) Z	2 and conversation professional adening gramma 2 laage). A1 2
and active participatic scientific articles or to 2046072 The aim is to extend I about topics of every 2046073 Mapped to the Commeterminology. Comprehensels a commeter and the	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and contexts from student's field of studies without difficulties. Grammar structures on advanced level. English - Upper Intermediate	T Z Idard English speech Z Id English and commontermediate level. Broadler Z gy (professional language) Z	2 and conversation professional adening gramma 2 laage). A1 2
and active participatic scientific articles or to 2046072 The aim is to extend I about topics of every 2046073 Mapped to the Commeterminology. Comprehensels a commeter and the	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and contexts from student's field of studies without difficulties. Grammar structures on advanced level. English - Upper Intermediate	T Z Idard English speech Z Id English and commontermediate level. Broadler Z gy (professional language) Z	2 and conversatio 2 on professional adening gramma 2 lage). A1 2
and active participatic scientific articles or to 2046072 The aim is to extend I about topics of everyor 2046073 Mapped to the Commeterminology. Comprehence where the commeter is a science of the commeter is a science of the commeter is a science of the commeter is a scientific to 2046126	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and contexts from student's field of studies without difficulties. Grammar structures on advanced level. English - Upper Intermediate	T Z Idard English speech Z Id English and common termediate level. Broadly gy (professional language) Z Standing and use of best common termediate.	2 and conversatio 2 on professional adening gramma 2 aage). A1 2 aasic expression
and active participatic scientific articles or to 2046072 The aim is to extend I about topics of everyor 2046073 Mapped to the Commeterminology. Comprehence where the commeter is a science of the commeter is a science of the commeter is a science of the commeter is a scientific to 2046126 Aim: Understanding of the commeter is a scientific to 2046126 Aim: Understanding of the commeter is a scientific to 2046126	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and convexts from student's field of studies without difficulties. Grammar structures on advanced level. English - Upper Intermediate	T Z Idard English speech Z Id English and common termediate level. Broadly gy (professional language) Z Standing and use of best common termediate.	2 and conversatio 2 on professional adening gramma 2 aage). A1 2 aasic expression
and active participatic scientific articles or to 2046072 The aim is to extend I about topics of everyor 2046073 Mapped to the Commeterminology. Comprehence where the commeter is a science of the commeter is a science of the commeter is a science of the commeter is a scientific to 2046126 Aim: Understanding of the commeter is a scientific to 2046126 Aim: Understanding of the commeter is a scientific to 2046126	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and contexts from student's field of studies without difficulties. Grammar structures on advanced level. English - Upper Intermediate	T Z Idard English speech Z Id English and common termediate level. Broadly gy (professional language) Z Standing and use of best common termediate.	2 and conversation professional adening gramma 2 lage). A1 2 pasic expression
and active participatic scientific articles or to 2046072 The aim is to extend I about topics of everyor 2046073 Mapped to the Commerterminology. Compret knowledge. 2046068 Aim: Basic vocabular 2046069 Mapped to the Commof general scientific to 2046126 Aim: Understanding of familiar topics. Readin 2046125	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and convexts from student's field of studies without difficulties. Grammar structures on advanced level. English - Upper Intermediate	T Z Idard English speech Z Idard English and common termediate level. Broadly (professional language) Z Idard English and common termediate level. Broadly (professional language) Z Idard English and use of both termediate level. Broadly (professional language) Z Idard English and use of both termediate level. Broadly (professional language) Z Idard English and use of both termediate level. Broadly (professional language) Z Idard English speech	2 and conversation 2 and professional adening gramma 2 age). A1 2 assic expression 2 mple way about 2

2046118	Czech -Advanced	Z	2
	Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in C	_	
	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
	ts from student's field of studies without difficulties. Grammar structures on advanced level.	_	
2046117	Czech -Advanced	Z	2
	ken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation ir		ressing opinions.
	write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical a		
2046127	Czech - Upper Intermediate	Z	2
_	d speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abil	ity to describe exp	eriences and
events, briefly explain of	one's opinions and plans. Reading and understanding general and technical texts.	1	
2046128	Czech - Upper Intermediate	Z	2
	n European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professiona		
	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.	Z	2
	eryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profes	sional language)	
2046120	Czech Language for Beginners II.	Z	2
	n European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understar	iding and use of b	asic expressions
	minology (professional language).		
2046086	French - Lower Intermediate Course	Z	2
	what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wr	iting in a simple w	ay about familiar
	mprehension of simple texts. Improvement of professional language.		
2046087	French - Lower Intermediate Course	Z	2
	Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which		
	peaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	of professional lar	iguage.
2046091	French - Advanced	Z	2
Mapped to the level of	Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on to	pics familiar to the	student.
	ative speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a	nd understanding	texts concerning
	ular scientific and technical articles.		
2046090	French - Advanced	Z	2
Comprehension of spo	ken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participatic	n in discussions. I	Expressing
	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and te	echnical articles.	
2046089	French - Upper Intermediate	Z	2
Mapped to the level of	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students c	omes across at w	ork, at school,
during free time, and ta	alking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understa	anding general and	d technical texts.
2046088	French - Upper Intermediate	Z	2
Understanding standar	d speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abil	ity to describe exp	eriences and
	one's opinions and plans. Reading and understanding general and technical texts.		
2046084	French - Beginners	Z	2
Understanding clearly	what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wr	iting in a simple w	ay about familiar
topics. Reading and co	mprehension of simple texts. Improvement of professional language.		
2046085	French - Beginners' Course	Z	2
Mapped to the level of	Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which	a student meets	at school or in
his/her free time and sp	peaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	of professional lar	iguage.
2146060	Indonesian Language Course for Exchange	Z	2
Basic of Indonesian La	nguage for Student Exchange Program to Indonesia		
2146061	Technical Indonesian - Course I.	Z	2
Second part of Indones	sian Language for Student Exchange Program to Indonesia		·
2144062	Technical Indonesian - Course II.	Z,ZK	3
Basic of Indonesian La	nguage for Student Exchange Program to Indonesia	,	
2046078	German - Lower Intermediate Course	Z	2
	early what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking ab	out them. Writing i	n a simple way
_	eading and comprehension of simple texts. Improvement of professional language.	· ·	, ,
2046079	German - Lower Intermediate Course	Z	2
	Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations whic	1	
	and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement		
2046083	German - Advanced Course	Z	2
	Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in	German without	
	n in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compr		-
scientific articles or tex	ts from student's field of studies without difficulties. Grammar structures on advanced level.		
2046082	German - Advanced Course	7	2
	ken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participat	ion in discussions	
	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and te		
2046081	German - Upper Intermediate Course	Z	2
	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		
2046080	German - Upper Intermediate Course	7	2
	d speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abil	ity to describe exp	
_	one's opinions and plans. Reading and understanding general and technical texts.		-
2046076	German - Beginners	Z	2
	,		_
Basic vocabulary of eve	eryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profes	sional language) l	t corresponds to

2046077	Cormon Baginners	l 7	2
	German - Beginners ommon European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding	Z	2 expressions of
	inology (professional language).	g and use of basic i	expressions of
2046161	Presentations in English	Z	2
	present in English on technical topics, with a possible co-operation with specialized departments.		2
		7	
2046166	Presentations in Czech	Z	2
	give presentations in English on technical topics, with a possible co-operation with specialized departments.	7	
2046162	Presentations in German	Z	2
	ting technical topics in German, possibly in cooperation with specialized departments.	_	
2046164	Presentations in Russian	Z	2
	nting 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 preser	nting technical topics in Spanish, possibly in cooperation with specialized departments.		
2046137	Russian - Lower Intermediate Course	Z	2
Understanding clearly	what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. W	riting in a simple w	ay about familia
topics. Reading and c	omprehension of simple texts. Improvement of professional language.		
2046138	Russian - Lower Intermediate Course	Z	2
Mapped to the level of	Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a st	tudent meets at scl	nool or in his/he
free time and speaking	g about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of profe	essional language.	
2046141	Russian - Advanced	Z	2
Comprehension of spe	oken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participa	tion in discussions.	Expressing
	. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and t	echnical articles.	
		echnical articles.	2
opinions. Written skills 2046142	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and t	Z	
opinions. Written skills 2046142 Mapped to the level of	. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and t Russian - Advanced	Z topics familiar to the	e student.
opinions. Written skills 2046142 Mapped to the level of Communication with r	A Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to Russian - Advanced Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on	Z topics familiar to the	e student.
opinions. Written skills 2046142 Mapped to the level of Communication with r currant issues and po	A Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to Russian - Advanced Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on lative speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a	Z topics familiar to the	e student.
opinions. Written skills 2046142 Mapped to the level of Communication with r currant issues and po 2046140	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to Russian - Advanced Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on lative speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a pular scientific and technical articles.	Z topics familiar to the land understanding	te student. texts concerning
opinions. Written skills 2046142 Mapped to the level of Communication with r currant issues and po 2046140 Mapped to the level of	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to Russian - Advanced Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on attive speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a pular scientific and technical articles. Russian - Upper Intermediate	Z topics familiar to the land understanding Z meets at work, at s	te student. texts concerning 2 school, during
opinions. Written skills 2046142 Mapped to the level of Communication with r currant issues and po 2046140 Mapped to the level of free time, and talking	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to Russian - Advanced Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on lative speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a pular scientific and technical articles. Russian - Upper Intermediate Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student	Z topics familiar to the land understanding Z meets at work, at s	te student. texts concerning 2 school, during
opinions. Written skills 2046142 Mapped to the level of Communication with r currant issues and pol 2046140 Mapped to the level of free time, and talking 2046139	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to Russian - Advanced Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on lative speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a pular scientific and technical articles. Russian - Upper Intermediate Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding standard speech about familiar matters.	Z topics familiar to the and understanding Z meets at work, at sanding general and	te student. texts concerning 2 school, during I technical texts.
opinions. Written skills 2046142 Mapped to the level of Communication with r currant issues and pol 2046140 Mapped to the level of free time, and talking 2046139 Understanding standa	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to Russian - Advanced Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on inative speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a pular scientific and technical articles. Russian - Upper Intermediate Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding Russian - Upper Intermediate	Z topics familiar to the and understanding Z meets at work, at sanding general and	te student. texts concerning 2 school, during I technical texts.
opinions. Written skills 2046142 Mapped to the level of Communication with r currant issues and pol 2046140 Mapped to the level of free time, and talking 2046139 Understanding standa events, briefly explain	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to Russian - Advanced Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on inative speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a pular scientific and technical articles. Russian - Upper Intermediate Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding standard speech about familiar matters that a student red speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abi	Z topics familiar to the and understanding Z meets at work, at sanding general and	te student. texts concerning 2 school, during I technical texts.
opinions. Written skills 2046142 Mapped to the level of Communication with recurrent issues and pol 2046140 Mapped to the level of free time, and talking 2046139 Understanding standar events, briefly explain 2046136	Russian - Advanced Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on ative speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a pular scientific and technical articles. Russian - Upper Intermediate Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding speech about familiar matters that a student aspeech about familiar matters that a student aspeech about familiar matters that a student aspeech about familiar matters that a student matters that a student aspeech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abione's opinions and plans. Reading and understanding general and technical texts.	Z topics familiar to the and understanding Z meets at work, at anding general and Z lity to describe exp	te student. 2 school, during 4 technical texts 2 eriences and
opinions. Written skills 2046142 Mapped to the level of Communication with recurrent issues and pol 2046140 Mapped to the level of free time, and talking 2046139 Understanding standa events, briefly explain 2046136 Mapped to the level of	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to Russian - Advanced Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on interest speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a pular scientific and technical articles. Russian - Upper Intermediate Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding speech about familiar matters that a student red speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abilione's opinions and plans. Reading and understanding general and technical texts. Russian - Beginners	Z topics familiar to the and understanding Z meets at work, at anding general and Z lity to describe exp	e student. 2 school, during 4 technical texts. 2 eriences and
opinions. Written skills 2046142 Mapped to the level of Communication with recurrant issues and pol 2046140 Mapped to the level of free time, and talking 2046139 Understanding standa events, briefly explain 2046136 Mapped to the level of general scientific te	Russian - Advanced Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on ative speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a pular scientific and technical articles. Russian - Upper Intermediate Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student about these topics. Ability to describe experiences and events, briefly explain one so opinions and plans. Reading and understanding standard speech about familiar matters that a student about these topics. Ability to describe experiences and events, briefly explain one so opinions and plans. Reading and understanding standard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to specific so opinions and plans. Reading and understanding general and technical texts. Russian - Beginners Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understand ruminology (professional language)	Z topics familiar to the and understanding Z meets at work, at anding general and Z lity to describe exp	te student. 2 school, during 4 technical texts 2 eriences and
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opinions. Written skills 2046142 Mapped to the level of Communication with r currant issues and por 2046140 Mapped to the level of free time, and talking 2046139 Understanding standar events, briefly explain 2046136 Mapped to the level of of general scientific te 2046135 Basic vocabulary of ex 2046099	Russian - Advanced Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on ative speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a pular scientific and technical articles. Russian - Upper Intermediate Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding speech about familiar matters that a student about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability one's opinions and plans. Reading and understanding general and technical texts. Russian - Beginners Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understanding including language) Russian - Beginners Veryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profesional Language) Spanish - Lower Intermediate	Z topics familiar to the and understanding Z meets at work, at seanding general and Z lity to describe exp Z ding and use of bases assional language) Z	te student. 2 school, during d technical texts. 2 eriences and 2 cic expressions 2
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opinions. Written skills 2046142 Mapped to the level of Communication with resurrant issues and poly 2046140 Mapped to the level of Gree time, and talking and tal	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to Russian - Advanced Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on ative speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a pular scientific and technical articles. Russian - Upper Intermediate Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student about these topics. Ability to describe experiences and events, briefly explain one sopinions and plans. Reading and understanding speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability one sopinions and plans. Reading and understanding general and technical texts. Russian - Beginners Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understanding in a spoken and written form. Understanding in a spoken and written form. Understanding spanish - Lower Intermediate Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a stag about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professionals - Lower Intermediate Spanish - Lower Intermediate	Z topics familiar to the and understanding Z meets at work, at sanding general and Z lity to describe exp Z ding and use of base Z ssional language) Z udent meets at schessional language. Z	e student. 2 school, during dischnical texts 2 eriences and 2 sic expressions 2 ool or in his/her
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List of courses of this pass:

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

2011056 Mathematics I Z,ZK 8 In the course, greater emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connections between concepts. Students will also get to know the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: eigennumbers and eigenvectors of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions. 2011062 Matematika II. Z,ZK 8 Open and closed set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differential operators div (divergence) and curl (rotation). Function given implicitly, Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, Fubini theorem. Transformation of integrals to polar, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green's theorem. A potential vector field, independence of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector field through a surface. The Gauss-Ostrogradskij theorem. Algorithmization and Programming Fundamentals 2012035 K7 Programming in MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Matrices, vectors and operations. Writting M-script. Input and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Systems of linear equations. Scripts and functions. Structure of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. Structures. Algorithmization of simple programs: minimum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of systems of linear equations. 2012037 **Computer Graphics** 2016007 Mathematics I. - Seminar Ζ 2 201A009 Mathematics III.A ZK 2 201A021 Constructive Geometry A ZK 3 The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations 201A049 Numerical Mathematics A ZK 2 201A056 Mathematics I.A ZK 4 Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable 201A062 Mathematics II.A ZK Open and closed set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differential operators div (divergence) and curl (rotation). Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, Fubini theorem. Transformation of integrals to polar, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green's theorem. A potential vector field, independence of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector field through a surface. The Gauss-Ostrogradskij theorem. 2021025 Physics II. 7.7K 4 Faraday's law of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic waves. Interaction of radiation with matter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and periodic system of elements. Spectra, x-rays, ;laser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiments related to the lectures. 2021041 Physics I. Kinematics and dynamics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic properties of bodies. Oscillations, waves. Fluid mechanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Conductors, semiconductors, insulators. Magnetic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect measurements, regression, measurements of 11 various experiments related to the lectures. Ζ 2026016 Physics - Seminar 2 The subject is mainly meant for high-school students for repetition of high-school physics. 202A025 7K 2 Physics II.A Faraday's law of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic waves. Interaction of radiation with matter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and periodic system of elements. Spectra, x-rays, ;laser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiments related to the lectures. Physics I. 2024041 7K 3 Kinematics and dynamics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic properties of bodies. Oscillations, waves. Fluid mechanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Conductors, semiconductors, insulators. Magnetic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect measurements, regression, measurements of 11 various experiments related to the lectures. 2041061 English-Bachelor Exam 2 Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. 2041062 German - Bachelor Exam / FME 7.7K 2 Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. 2041063 French - Bachelor Exam /FME Z,ZK 2 Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. 2041064 Spanish - Bachelor Exam / FME 7.7K 2 Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. 2041065 Russian - Bachelor Exam / FME 2 Z,ZK Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. Ζ 2046068 English - Beginners 2 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional language). A1 2046069 English - Beginners Mapped to the Common European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional language).

2046070 Aim: Understandir	English - Lower Intermediate 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	2 way about
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.		-
2046071	English - Lower Intermediate	Z	2
1 1	mmon European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which a settine and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improveme		
2046072	English - Upper Intermediate	Z	2
The aim is to exten	d language skills taking into consideration professional English and common professional terminology. Comprehension of standard En about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2		onversation
2046073	English - Upper Intermediate		2
	pmmon European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional Engli		
terminology. Comp	rehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermedi knowledge.	ate level. Broadenin	ng grammar
2046074	English - Advanced	Z	2
The aim: comprel	hension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Written	n and oral skills on	advanced
level. Ability to wr	ite a summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's field	of studies without	difficulties.
2046075	Grammar structures on advanced level. B1 - B2.	7	2
	English - Advanced pmmon European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in En	_	
	pation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay reading and comprehen		
, , ,	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.		
2046076	German - Beginners	Z	2
Basic vocabulary of	if everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profession the Common European Framework of Reference for Languages A1.	nal language) It cor	responds to
2046077	German - Beginners	7	2
	rel Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding an	id use of basic exp	
	general scientific terminology (professional language).		
2046078	German - Lower Intermediate Course	Z	2
Aim: Understandir	ng clearly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking about	them. Writing in a	simple way
	about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046079	German - Lower Intermediate Course	Z	2
	el of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a		
	e time and speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts. Improvement	To professional la	2
2046080	German - Upper Intermediate Course andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	to describe experi	
Onderstanding st	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.	to describe experie	onices and
2046081	German - Upper Intermediate Course	Z	2
Mapped to the lev	vel of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students com	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	hnical texts.
2046082	German - Advanced Course	Z	2
	of spoken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participatio		
2046083	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a German - Advanced Course	Z	2
	German - Advanced Course el of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in Ge		
	ation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehe	-	
	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.		
2046084	French - Beginners	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	in a simple way at	oout familiar
	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. Improvement		
2046086	French - Lower Intermediate Course	7	2
	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	_	
Ŭ	topics. Reading and comprehension of simple texts. Improvement of professional language.	, ,	
2046087	French - Lower Intermediate Course	Z	2
	vel of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a		
	ne and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement		
2046088	French - Upper Intermediate	Z	2
Understanding st	andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.	to describe experie	ences and
2046089	French - Upper Intermediate	Z	2
	relicit - Opper intermediate vel of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students com	1	
	nd talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding		
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	່າ in discussions. Ex	
· · · · · · · · · · · · · · · · · · ·	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a	and technical article	es.
2046091	French - Advanced	Z	2
	level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on to	-	
Communication wi	th native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and u	inderstanding texts	concerning

2046006	Chanish Deginners	Z	2
2046096	Spanish - Beginners Ig clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.		
7	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	TTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT	nay about
2046097	Spanish - Beginners	Z	2
Mapped to the C	common European Framework of Reference Level A1. Aim: Understanding clearly what is spoken about everyday situations which a s	student meets at sc	chool or in
his/her free tin	ne and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	of professional lan	nguage.
2046098	Spanish - Lower Intermediate	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	រ in a simple way ab	bout familiar
0040000	topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046099	Spanish - Lower Intermediate el of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a studer	Z Z	2
	and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of simple texts.		
2046117	Czech -Advanced	7	2
	spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in dis	cussions. Expressi	
	en skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and t		
2046118	Czech -Advanced	Z	2
	el of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czec	-	
active participat	ion in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehens	ion of popular-scie	entific and
2040440	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.	7	
2046119	Czech Language for Beginners I. abulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p	Z Z	2
2046120	Czech Language for Beginners II.	7	2
	nmon European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding	ا ← ا a and use of basic ه	
	of general scientific terminology (professional language).	,	
2046125	Czech Lower Intermediate	Z	2
Aim: Understandir	ng clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Writing in a simple	way about
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046126	Czech Lower Intermediate	Z	2
Aim: Understandir	ng clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Writing in a simple	way about
2046427	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	7	2
2046127	Czech - Upper Intermediate andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	_	l
Onderstanding st	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.	to describe experie	criocs and
2046128	Czech - Upper Intermediate	Z	2
Mapped to the Cor	mmon European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional Cz	ech and common p	orofessional
terminology. Cor	nprehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on interm	rediate level. Broad	lening the
	knowledge technical language.		Г
2046135	Russian - Beginners	Z	2
	abulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p	rofessional langua	
2046136	Russian - Beginners el of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understanding	and use of basic e	2 evaressions
wapped to the lev	of general scientific terminology (professional language)	and use of basic e.	жртеззіонз
2046137	Russian - Lower Intermediate Course	Z	2
	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	1	l
	topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046138	Russian - Lower Intermediate Course	Z	2
	el of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a studen		
	and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of	orofessional langua	
2046139	Russian - Upper Intermediate	<u> </u>	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 events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.	to describe experie	ences and
2046140	Russian - Upper Intermediate	Z	2
I .	vel of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student me	1	l
1	ng about these topics. Ability to describe experiences and events, briefly explain one s opinions and plans. Reading and understanding		_
2046141	Russian - Advanced	Z	2
Comprehension	of spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participatio	n in discussions. Ex	xpressing
·	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a		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 wi	th 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.	nucrotationing texts	concerning
2046155	English Conversation	Z	2
23 10 100	Improving communicative skills in speaking on general topics and general technical topics.	_	· -
2046156	English Conversation	Z	2
	Improving communicative skills in speaking on general topics and general technical topics.	1	ı
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
1	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
2040104	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.	l	'
2046166	Presentations in Czech	Z	2
	Preparing students to give presentations in English on technical topics, with a possible co-operation with specialized department	ents.	
2112092	Department Project	KZ	4
2122092	Department Project	KZ	4
	he content of the subject is given by the topic of bachelor's work after consultion with supervisor of bachelor work or the tutor of the		
2131002	Engineering Design II	Z,ZK	4
	SPS (Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface	_	I
	ps, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice the		
2131026	Machine Elements and Mechanisms II	ZK	3
Preliminary design	, design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, p and fittings.	opelines and their	accessories
2131120	Design of Steel Structures	Z,ZK	6
2131512	Machine Elements and Mechanisms I.	Z,ZK	6
	INACTIFIE Elements and injection in its it.		
	on, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded		
	nd key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple assen	•	
	seminar work.	•	
2132092	Project	KZ	4
Elaboration of ser	mester global project of mechanical drive of conveyor composed of electric motor, elastic shaft coupling (respectively V-belt drive), ge	arbox provided wit	h two pairs
00	d compensating double-row toothed shaft coupling (respectively roller chain drive). Second, alternative arrangement of projected mech	•	I
	x and additional mechanical drives by means of only one single-stage warm gearbox Elaboration of 4 additional reports analysing produced in the control of 4 additional reports analysing produced in the control of 4 additional reports analysing produced in the control of 4 additional reports analysing produced in the control of 4 additional reports analysing produced in the control of 4 additional reports analysing produced in the control of 4 additional reports analysing produced in the control of 4 additional reports analysing produced in the control of 4 additional reports analysing produced in the control of 4 additional reports analysing produced in the control of 4 additional reports analysing produced in the control of 4 additional reports analysing produced in the control of 4 additional reports analysing produced in the control of 4 additional reports analysing produced in the control of 4 additional reports and 4 additional reports and 4 additional reports analysing produced in the control of 4 additional reports and 4		
of assigned ma	chine element (gearbox shaft or gear). Besides project of mechanical drive must be elaborated design project of crank mechanism at	nd its flywheel for a	assigned
0400040	single-cylinder piston engine.	-	
2133013	Engineering Design III.	Z	2
0400044	Design of assembly unit (draft drawing, detail drawing, assembly drawing, technical report)	7	
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 coupling transmissions.		
2141504	Electric Circuits and Electronics heory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of e	Z,ZK	4
	electronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilize		٠, ا
Introduction into	amplifier). Analogue and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, micropro		ociational
2141505	Electrical machines and drives	Z,ZK	4
	ectrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transf		
3-phase transfor	mer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-	torque characteris	tic, speed
control. Synchrono	us machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque character	istic. Low-voltage i	nstruments.
	Low-voltage distribution system.		
2144062	Technical Indonesian - Course II.	Z,ZK	3
	Basic of Indonesian Language for Student Exchange Program to Indonesia	_	
2146060	Indonesian Language Course for Exchange	Z	2
	Basic of Indonesian Language for Student Exchange Program to Indonesia		_
2146061	Technical Indonesian - Course I.	Z	2
	Second part of Indonesian Language for Student Exchange Program to Indonesia		
2152091	Deparmental Project	KZ	2
2153005	Fundamentals of Energy Conversions	Z	1
2153091	Presentation of Project	Z	4
2181026	Momentum, Mass and Heat Transfer	Z,ZK	5
	transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical		
time distributions in	n continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and the	mal radiation. Mult	icomponent
0400040	systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.	1/7	
2182019	Chemistry ry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties	KZ	3
	ry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties in, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biocher		- 1
priaso oquilibriui	oriented upon the material properties measurement.	ou y. Laboratory	p. 401100 13
2182091	Project	KZ	2
2102031	Absolvent se seznámí se základy oboru Procesní technika.	IV.	
2183091	Project Presentation	Z	4
	Preparation and presentation of a given project theme.	_	' '
2211581	Transmissions	Z,ZK	5
1	es a general summary of transmissions for various applications which the student in the specialization designer-calculator meets. The		
1	port machines will be briefly explained, important calculations will be discussed in more detail on the examples of transmission devices.		-
2212092	Project	KZ	4
	Basic practical skills of work with advanced CAD/CAE/CAM systems. Project training in solution of design task based on industry rec	uirements.	·
2311073	Simulation of Mechanical Systems	Z,ZK	6

2311101	Mechanics I.	Z,ZK	4
Mechanics I deals	with the basic concepts of statics. There are described the methods of solution of equilibrium of particles and rigid bodies and their sys	stems with and with	nout friction.
	There are introduced the methods of description of position and motion of particles and rigid bodies.		
2311102	Mechanics II.	Z,ZK	4
•	and of rigid bodies. Transformation matrix. Kinematics of concurrent movements. Motion: translation, rotation, general planar motion, s ion. Composition of mechanisms. Basic planar mechanisms. Analytical methods in kinematics of mechanisms - Trigonometric and vect		
general spatial mot	in kinematics. Basic theory of gearing. Transmition mechanisms with geers. Strutting and seezing in mechanisms. Cable mechanisms with geers.		Lai memous
2312092	Department project	KZ	4
2012002	Individual asignment	112	•
2321039	Materials Science II.	Z,ZK	4
Fundamentals of m	netallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and the	nermo-mechanical	processing,
	technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materi		
2322029	Materials Science I.	KZ	3
	ent state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, defor		
2351110	erials, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, in Modeling and simulation I.	Z,ZK	5 5
2331110	The subject is focused on explanation of the design of machine tool axis by individual parts and components.	Z,ZR	5
2351117	The despect to reduced an explanation of the design of maxima cost axis symmetric and compensation	Z,ZK	5
2001111	I Importance of fluid mechanisms and drives, principle, design and use. Divided on two parts - Hydraulics and Pneumatics.	_,,	
2352092	Specialization Project	KZ	4
The course is focus	sed on elaboration of individual work, which student solves in close cooperation with the head of the assigned topic. The student will ge	t acquainted with th	ne problems
•	nachines and the equipment, respectively its parts according to the orientation of their work, and during regular weekly consultations	•	
professional soluti	on of the problem. At the end of the semester students present their work on small oral examination in which they present the work p	erformed, the cohe	erence and
0000004	meaning.	1/7	
2362091	Project Programmer Transfer Project	KZ	2
2363091	Project Presentation	Z	4
2371047	Automatic Control lers are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automat	Z,ZK	5
	ns, open versus closed loop control, design of controllers and frequency based analysis of control systems. The course also concentra	•	
	e logic controllers. Some seminaries are arranged in laboratories where practical skills and control engineering methods are trained.	•	
	MATLAB software as a common platform of control engineers.		
2372041	Computer Support for Study	KZ	3
	ces students into creating technical and professional documents on computers or Web and into realizing technical computations with t	•	
	al skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical		
2372083	Measurement in Engineering sor principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and	KZ	3 surement
OVERVIEW OF SCIE	instruments.	vermeation of mea	Surcinoni
2372091	Project	KZ	2
	An individual project from the branch of specialisation, which student will study on his/her magister level	'	
2373091	Project presentation	Z	4
· ·	pachelor work presentation. Student should study the presentation software possibilities and proposition of the department. Student should study the presentation software possibilities and proposition of the department.		
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. Conse	quently, the work s	should be
2201051	presented as a pdf file on a temporal web page. Management and Economics of the Enterprise	7 7V	1
2381054 The subject is inten	ded to teach the students of the Faculty of Mechanical Engineering the basic economic starting points necessary for technical reasonin	Z,ZK	understand
=	ships between economic quantities costs - revenues, expenses - incomes and other basic economic terms. The goal is for the audience	-	
with economists in	n organizations, every product or service is valued at a selling price and therefore it is necessary to understand the simple costing of	products and servi	ces. Every
	ounter reports and should understand the basic structure of financial statements. As a future manager, he will compile and approve the		
_	they will learn basic managerial functions and their content. Furthermore, they will learn how to use network analysis in project manageriaes, they will learn the applications of multi-criteria decision making. The basics of multi-criteria and attraction management will be	-	on-making
2383001	purposes, they will learn the applications of multi-criteria decision-making. The basics of marketing and strategic management will be	Z	2
	Fundamentals of Law n legal system is a necessary part of professional equipment of each expert with university degree. The aim of this course is to provid		
	purces of law and system of law (branch of law), using tutorials, lectures, specialised literature and significant legal regulations. It is n		- 1
our legal institutio	ns, 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 t	the course
leads students to k	now some practical habits and processes while putting the law on, especially in domain of contracts and other important legal relation	ships and to make	them ready
	to prepare professional presentations and to understand basic structures between law and engineering		_
2383009	Communication and Dealing with People	Z	2
riuman communic	cation represents an irreplaceable phenomenon in human activity, as it is present in practically all of his activities. The same applies (the activities of managers. So you can't not communicate - you can only communicate badly, well and excellently.	with specific modifi	cauons) to
K331068	Technology I	Z,ZK	5
	of metals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of form		
	heating-up. Cutting. Cold and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. Brasing. Surface treatmen		
K333038	Fundamentals of Technology I.	Z	3
•	ses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technology		
	sting: modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming tech		
riee and drop to	orging. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of welding and arc welding with coated electrodes. Thermal cutting.	ang. i usion weidin	ig. i idilile
K341014	Technology II.	Z,ZK	5
	1	_,`	

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