### Study plan

### Name of study plan: 11 68 73 00 DTZI 2012 K základ

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch:

Program of study: Theoretical Fundamentals of Mechanical Engineering

Type of study: Bachelor combined

Required credits: 10

Elective courses credits: 207 Sum of credits in the plan: 217

Note on the plan: SP12BTZI--K # druhý pokus

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 0

The role of the block: P

Code of the group: 12DTK1P-KMEN

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

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

Credits in the group: 0

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

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2182019	Chemistry Radek Šulc, Martin Dostál, Vojt ch B lohlav, Stanislav Solna , Jan Sko ilas Radek Šulc Radek Šulc (Gar.)	KZ	3	2P+1C	1	Р
2011021	Constructive Geometry Ivana Linkeová	Z,ZK	6	3P+2C	*	Р
2011056	Mathematics I Radka Keslerová, Marta Hlavová, Ji í Holman, Gejza Dohnal, Marta ertíková, Vladimír Hric, Nikola Pajerová, Petr Louda, Lukáš Hájek, Radka Keslerová Gejza Dohnal (Gar.)	Z,ZK	8	4P+4C	*	Р
2372041	Computer Support for Study Vladimír Hlavá	KZ	3	1P+1C	*	Р
2132001	Engineering Design I.  Karel Petr	KZ	2	1P+2C	1	Р
2131005	History of Technology	ZK	3	2P+0C	1	Р

#### Characteristics of the courses of this group of Study Plan: Code=12DTK1P-KMEN Name=00 2012 D kmenové 1. semestr TZI kombinované Chemistry General chemistry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties of matter, thermodynamics, phase equilibrium, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochemistry. Laboratory practice is oriented upon the material properties measurement. Z,ZK 2011021 Constructive Geometry The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations. 2011056 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. Computer Support for Study 3 The course introduces students into creating technical and professional documents on computers or Web and into realizing technical computations with the use of computers. Students gain practical skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical-based WWW page 2 2132001 Engineering Design I. ΚZ Basic of technical representation, dimensioning and tolerancing 2131005 History of Technology Developement of human knowledge in the domain of science and technology in the retrospective of the developement of our civilization. Emphasis is given upon new branches of

technology with special attention to the contribution of mining, iron metallurgy, power engineering, transportation and of the machine industry in the narrower sense of the word.

Code of the group: 12DTK2P-KMEN

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

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

Credits in the group: 0

Note on the group: 12B\*\*2P-KMEN #

TOLE OIL LITE	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
2021041	Physics I.	Z,ZK	7	4P+1L	*	Р
201A021	Constructive Geometry A Ivana Linkeová	ZK	3	0P+0C	*	Р
201A056	Mathematics I.A Radka Keslerová	ZK	4	0P+0C	*	Р
2011062	Matematika II. Radka Keslerová	Z,ZK	8	4P+4C	*	Р
2322029	Materials Science I. Jakub Horník, Jana Sobotová, Ji í Cejp, Elena ižmárová, Pavlína Hájková, Stanislav Krum, Jan Kr il, Vladimír Mára, Lucie Pilsová, Jana Sobotová Jana Sobotová (Gar.)	KZ	3	2P+1L	2	Р
2012037	Computer Graphics Marta Hlavová, Ji í Holman, Nikola Pajerová, Martin Hanek, Jan Karel, Ivana Linkeová, Jaroslav Cibulka Ivana Linkeová	KZ	3	1P+1C	*	Р
2131002	Engineering Design II  Martin Dub, Jan Flek, Martin Havlí ek, Jan Kanaval, Karel Petr, Marek Štádler, Jan Hoidekr Karel Petr Karel Petr (Gar.)	Z,ZK	4	2P+3C	2	Р
K333038	Fundamentals of Technology I.	Z	3	8B	*	Р

2021041	Physics I.	Z,ZK	7
Kinematics and dyna	mics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic	properties of bodie	es. Oscillations,
waves. Fluid mechan	ics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co	nductors, semicon	ductors,
nsulators. Magnetic	field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and ind	direct measuremen	ts, regression,
measurements of 11	various experiments related to the lectures.		
201A021	Constructive Geometry A	ZK	3
The subject is focuse	ed on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.	,	
201A056	Mathematics I.A	ZK	4
ntroduction to linear	algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable	'	
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. Differe	ntial aparatara div	(divergence)
	, boundary in E. K. Near function of k-variables. Fartial derivatives and differentiability. Gradient and difectional derivative, biliere	fillal operators div	(divergence)
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and curl (rotation). Fu	inction given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral	ral, Fubini theorem.	.Transformation
and curl (rotation). Fu of integrals to polar, o	inction given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Grant Court of the control of the	ral, Fubini theorem. een's theorem. A p	Transformation otential vector
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and curl (rotation). Fu of integrals to polar, of ield, independence of Gauss-Ostrogradskij 2322029 History and present s	inction given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Groof a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vectorem.  Materials Science I.  state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, defer	ral, Fubini theorem. reen's theorem. A p ctor field through a  KZ  ormation, recrystal	Transformation to tential vector surface. The
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and curl (rotation). Further function of integrals to polar, of integrals to polar, of integrals to polar, of integrals to polar, of integrals of integrals of integrals of integrals of integrals of integrals of inciples of ISO GP	Inction given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integraly cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Groof a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector theorem.    Materials Science I.	ral, Fubini theorem. reen's theorem. A p ctor field through a  KZ ormation, recrystal on-carbon phase d  KZ Z,ZK ace texture, geome	Transformation to the first surface. The surface. The surface and
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and curl (rotation). Further function of integrals to polar, of integrals to polar, of integrals to polar, of integrals to polar, of integrals of in	Inction given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Groff a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector theorem.    Materials Science I.	ral, Fubini theorem. reen's theorem. A p ctor field through a  KZ ormation, recrystal on-carbon phase of KZ Z,ZK ace texture, geome eir knowledge from Z chnical metals. Pro	Transformation obtential vector surface. The  3 dization and diagram.  3 4 trical tolerance lectures. 3 duction of pig cold forging.

Code of the group: 12DTK3P-KMEN

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

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

Credits in the group: 0

Note on the group:

12B\*\*3P-KMEN#

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
202A041	Physics I.	ZK	3	0P+0L	*	Р
2021025	Physics II.	Z,ZK	4	1P+2L	3	Р
201A062	Mathematics II.A Radka Keslerová	ZK	4	0P+0C	*	Р
2011009	Mathematics III Radka Keslerová, Ji í Holman, Gejza Dohnal, Marta ertíková, Vladimír Hric, Jan Valášek, Lud k Beneš, Tomáš Bodnár, Tomáš Neustupa, Stanislav Kra mar Stanislav Kra mar (Gar.)	Z,ZK	5	2P+2C	*	Р
2311101	Mechanics I. Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Zbyn k Šika, Michael Valášek Michael Valášek (Gar.)	Z,ZK	4	2P+2C	*	Р
2321039	Materials Science II. Jakub Horník, Jana Sobotová, Ji í Cejp, Elena ižmárová, Jan Walter, Pavlína Hájková, Stanislav Krum, Jan Kr il, Vladimír Mára, Stanislav Krum Jana Sobotová (Gar.)	Z,ZK	4	2P+2L	*	Р
2133013	Engineering Design III.  Jan Kanaval, Jan Hoidekr, František Lopot, David Skalický, Roman Uhlí Jan  Hoidekr Jan Hoidekr (Gar.)	Z	2	0P+2C	Z	Р
2121023	Thermodynamics	Z,ZK	5	3P+2C	*	Р
2012035	Algorithmization and Programming Fundamentals Ji í Holman, Marta ertíková, Vladimír Hric, Lukáš Hájek, Jan Halama, Vladimír Prokop, Martin Hanek, Jan Karel, Josef Musil, Petr Svá ek Petr Svá ek (Gar.)	KZ	4	1P+2C	*	Р

#### Characteristics of the courses of this group of Study Plan: Code=12DTK3P-KMEN Name=00 2012 D kmenové 3, semestr TZI kombinované

Characteristics of	the courses of this group of Study Plan: Code=12D I K3P-KMEN Name=00 2012 D kmenove 3.	semestr i Zi k	ombinovane
202A041	Physics I.	ZK	3
Kinematics and dynami	cs of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic	properties of bod	ies. Oscillations,
waves. Fluid mechanics	s. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co	nductors, semicor	iductors,
insulators. Magnetic fiel	d. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and inc	direct measuremen	nts, regression,
measurements of 11 va	rious experiments related to the lectures.		
2021025	Physics II.	Z,ZK	4
Faraday's law of electron	nagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of	electromagnetic w	aves. Interaction
of radiation with matter.	Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom a	nd periodic systen	n of elements.
Spectra, x-rays, ;laser. I	Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 e	xperiments related	I to the lectures.
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). Func	tion given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integ	ral, Fubini theorem	. Transformation
of integrals to polar, cyli	indrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Gr	reen's theorem. A p	potential vector
field, independence of a	a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a ve	ctor field through a	surface. The
Gauss-Ostrogradskij the	eorem.		
2011009	Mathematics III	Z,ZK	5
An introductory course	in ordinary differential equation and infinite series.		
2311101	Mechanics I.	Z,ZK	4
Mechanics I deals with	he basic concepts of statics. There are described the methods of solution of equilibrium of particles and rigid bodies and thei	r systems with and	without friction.
There are introduced th	e methods of description of position and motion of particles and rigid bodies.		
2321039	Materials Science II.	Z,ZK	4
Fundamentals of metall	urgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal ar	nd thermo-mechan	ical processing,
technical iron-carbon al	loys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materials.		
2133013	Engineering Design III.	Z	2
Design of assembly uni	t (draft drawing, detail drawing, assembly drawing, technical report)		
2121023	Thermodynamics	Z,ZK	5
The course deal with a	basic engineering approach to classical thermodynamics, heat transfer and compressible flow through nozzles and diffusers.	Basic concepts ar	nd principles are
introduced, and they are	applied mostly to systems behaving as ideal gases or typical vapours. Basic notions associated with ideal mixtures are studied w	vith an emphasis or	n psychometrics.
Heat transfer covers fur	ndamentals of conduction, convection and radiation. Heat exchangers are treated as an engineering application. Exercises an	nd labs are devoted	to practical
problems and experime	ntal technique.		
		1	

Code of the group: 12DTK4P-KMEN

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

Algorithmization and Programming Fundamentals

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

Credits in the group: 0

Note on the group:

2012035

12B\*K4P-KMEN #

ΚZ

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

Code	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
202A025	Physics II.A	ZK	2	0P+0C	*	Р
201A009	Mathematics III.A Stanislav Kra mar	ZK	2	0P+0C	*	Р
231A101	Mechanics I.A Michael Valášek	ZK	2	0P+0C	*	Р
2311102	Mechanics II. Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Zbyn k Šika, Michael Valášek Václav Bauma (Gar.)	Z,ZK	4	2P+2C	*	Р
2121500	Fluid Dynamics	Z,ZK	5	3P+2C	*	Р
2011049	Numerical Mathematics Radka Keslerová, Ji í Holman, Marta ertíková, Vladimír Hric, Petr Louda, Lukáš Hájek, Jan Valášek, Lud k Beneš, Tomáš Bodnár, Petr Svá ek Petr Svá ek (Gar.)	Z,ZK	4	2P+2C	4	Р
2133014	Engineering Design IV. František Lopot František Lopot (Gar.)	Z	2	0P+2C	L	Р
K331068	Technology I Bohumír Bedná	Z,ZK	5	16B	*	Р
212A023	Thermodynamics A	ZK	2	0P+0C	*	Р

#### Characteristics of the courses of this group of Study Plan: Code=12DTK4P-KMEN Name=00 2012 D kmenové 4. semestr TZI kombinované

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					

201A009	Mathematics III.A	ZK	2
231A101	Mechanics I.A	ZK	2
2311102	Mechanics II.	Z,ZK	4

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

2121500 Fluid Dynamics Z,ZK

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

2011049 **Numerical Mathematics** Z,ZK

Numerical solution of systems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical solution of ordinary differential equations, initial and boundary value problems. Numerical solution of basic linear partial differential equations by finite difference method.

2133014	Engineering Design IV.	Z	2
K331068	Technology I	Z,ZK	5
l <b>–</b>			

Foundry properties of metals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of forming processes. Semi-products, heating-up. Cutting. Cold and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. Brasing. Surface treatment.

212A023 Thermodynamics A

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

Code of the group: 12DTK5P-KMEN

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

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

Credits in the group: 0

Note on the group:

12B\*K5P-KMEN #

ZK

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2131512	Machine Elements and Mechanisms I.  Martin Dub, Martin Havlí ek, Jan Kanaval, Karel Petr, Marek Štádler, Eliška Cézová, Zden k ešpíro, Jan Hoidekr, František Lopot, František Lopot František Lopot (Gar.)	Z,ZK	6	3P+2C	*	Р
2141504	Electric Circuits and Electronics Stanislava Papežová, Jan Chyský, Jaroslav Novák, Lukáš Novák <b>Jaroslav</b> <b>Novák</b> Jan Chyský (Gar.)	Z,ZK	4	2P+0C+2L	*	Р

2311107	Mechanics III. Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Zbyn k Šika, Michael Valášek	Z,ZK	7	2P+3C	5	Р
231A107	Michael Valášek (Gar.)  Mechanics III.A  Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Zbyn k Šika, Michael Valášek Michael Valášek (Gar.)	ZK	4	0P+0C	*	Р
2372083	Measurement in Engineering Martin Novák, Vladimír Hlavá Martin Novák Martin Novák (Gar.)	KZ	3	1P+0C+2L	*	Р
K341014	Technology II. Pavel Novák	Z,ZK	5	8KP+8KC	*	Р
2153005	Fundamentals of Energy Conversions Ond ej Bartoš, Tomáš Dlouhý, Václav Dostál, Zden k Funda, Miroslav Gleitz, Jan Havlík, Št pán Hrouda, Jitka Jeníková, Guk Chol Jun, Jan Havlík	Z	1	1P+1C	*	Р
2383001	Fundamentals of Law Václav Pilík Václav Pilík (Gar.)	Z	2	1P+1C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12DTK5P-KMEN Name=00 2012 D kmenové 5. semestr TZI kombinované

	2131512	Machine Elements and Mechanisms I.	Z,ZK	6				
	Joints and joining elements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, keys). Mechanical transmissions							
	(belt, chain, friction, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded connecting bolts, clamped,							
pressed, splined and key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple assembly units is also indispensable								
	seminar work.							

2141504	Electric Circuits and Electronics	∠,∠n	4
Introduction into theory	of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of	of energy. El. Pow	er and Energy.
Introduction into cloatro	nice. Principle and typical parameters of basic comisanductor components. Application in electronic circuits (rectifier, stabilize	or nower central	operational

Introduction into electronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, microprocessor.

2311107	Mechanics III.	Z,ZK	7	
Mechanics III deals with	the basic concepts of dynamics. Methods of solving the dynamics of mass particle and body motion and their systems are of	described. Method	ds for describing	
and solving vibrations of	systems.			

231A107	Mechanics III.A	_ ZK	4
2372083	Measurement in Engineering	KZ	3
Overview of sensor prin	ciples for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and	verification of mo	easurement

mstruments.			
K341014	Technology II.	Z,ZK	5
2153005	Fundamentals of Energy Conversions	Z	1

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

Code of the group: 12DTK6P-KMEN

Fundamentals of Law

Floatria Circuita and Floatronica

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

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

Credits in the group: 0

Note on the group:

24.44.50.4

2383001

12B\*\*6P-KMEN #

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2371047	Automatic Control Milan Hofreiter, R žena Petrová, Tomáš Vyhlídal, Jaromír Fišer Tomáš Vyhlídal Tomáš Vyhlídal (Gar.)	Z,ZK	5	3P+15C+05L	*	Р
2131026	Machine Elements and Mechanisms II Martin Dub, Jan Flek, Jan Kanaval, Karel Petr, Eliška Cézová, Zden k ešpíro, František Lopot, Ji í Houkal František Lopot František Lopot (Gar.)	ZK	3	3P+0C	*	Р
2141505	Electrical machines and drives Michael Valášek, Jan Chyský, Jaroslav Novák, Lubomír Musálek <b>Jaroslav</b> Novák Jan Chyský (Gar.)	Z,ZK	4	2P+0C+2L	*	Р
2133025	Design František Lopot František Lopot (Gar.)	Z	4	0P+4C	*	Р
2381054	Management and Economics of the Enterprise Olga Heralová, Št pánka Uli ná, Vladimír Brdek, Petr Žemli ka Olga Heralová (Gar.)	Z,ZK	4	2P+2C	*	Р
2181026	Momentum, Mass and Heat Transfer Martin Dostál, Vojt ch B Iohlav, Stanislav Solna, Jan Sko ilas, Tomáš Jirout, Adam Krupica, Ji í Moravec Tomáš Jirout Tomáš Jirout (Gar.)	Z,ZK	5	3P+1C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12DTK6P-KMEN Name=00 2012 D kmenové 6. semestr TZI kombinované

Automatic Control

Automatic Control

Automatic Control

Automatic Control

Automatic Control

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

2131026

Machine Elements and Mechanisms II

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

2,ZK

4

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

2133025 Design

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

2381054 | Management and Economics of the Enterprise | Z,ZK | 4
The course is designed to give students the understanding of economic principles. The economical part of the course is consisted from: explanation of relationship between costs and revenues, expenses and income, concept of investment and calculations per product, presentation how to assemble a basic operating budget and explanation of the basic structure

of the financial statements. The management introduces the basic managerial functions and their contents, the uses of network analysis in project management, with the application of multi-criteria decision, the basics of marketing and strategic management.

Name of the block: Compulsory elective courses

2181026 Momentum, Mass and Heat Transfer

Fundamentals of transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical energy equation. Residence time distributions in continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and thermal radiation. Multicomponent systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.

Minimal number of credits of the block: 10

The role of the block: PV

Code of the group: 12B\*\*1Q-HUM

Name of the group: 03 2012 bakalá ské povinn volitelné humanitární

Requirement credits in the group: In this group you have to gain at least 2 credits (at most 6)

Requirement courses in the group: In this group you have to complete at least 1 course (at most 3)

Credits in the group: 2

Note on the group:

Ze skupiny humanitních předmětů nutno j e d e n absolvovat

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2383019	Philosophical Issues Of Individual and Science	Z	2	1P+1C	*	PV
2383009	Communication and Dealing with People Jan Horejc Jan Horejc (Gar.)	Z	2	1P+1C	*	PV
2383008	Managerial Psychology	Z	2	1P+1C	*	PV

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

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

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

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

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

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

Credits in the group: 2

Note on the group:

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

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

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

2041061	English-Bachelor Exam	Z,ZK	2
Mapped to the Commor	European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	culties, to take pa	rt in discussions,
to write a summary, a r	eport and an essay, to read technical texts, to master grammar at advanced level.		
2041063	French - Bachelor Exam /FME	Z,ZK	2
Mapped to the Commor	European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	culties, to take pa	rt in discussions,
to write a summary, a r	eport and an essay, to read technical texts, to master grammar at advanced level.		
2041062	German - Bachelor Exam / FME	Z,ZK	2
Mapped to the Commor	European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	culties, to take pa	rt in discussions,
to write a summary, a r	eport and an essay, to read technical texts, to master grammar at advanced level.		
2041065	Russian - Bachelor Exam / FME	Z,ZK	2
Mapped to the Commor	European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	culties, to take pa	rt in discussions,
to write a summary, a r	eport and an essay, to read technical texts, to master grammar at advanced level.		
2041064	Spanish - Bachelor Exam / FME	Z,ZK	2
Mapped to the Commor	n European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	culties, to take pa	rt in discussions,
to write a summary, a r	eport and an essay, to read technical texts, to master grammar at advanced level.		

Code of the group: 12BT\*6Q-OP

Name of the group: 10 2012 BTZI 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:

Note on the gro	up.					
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
2012091	Project Ji i Fürst	KZ	2	0P+2C	*	PV
2112091	Project	KZ	2	0P+2C	*	PV
2122091	Department Project	KZ	2	0P+2C	*	PV
2132091	Branch Project Roman Uhli	KZ	2	0P+2C	*	PV
2152091	Deparmental Project	KZ	2	0P+2C	*	PV
2162091	Project	KZ	2	0P+2C	*	PV
2182091	Project Tomáš Jirout	KZ	2	0P+2C	*	PV
2222091	Project	KZ	2	0P+2C	*	PV
2312091	Project Michael Valášek	KZ	2	0+2	*	PV
2322091	Project Jakub Horník, Jana Sobotová, Ji í Cejp, Elena ižmárová, Pavlína Hájková, Stanislav Krum, Jan Kr il, Vladimír Mára, Jakub Horváth, Stanislav Krum	KZ	2	0P+2C	*	PV
2332091	Project Bohumír Bedná, Barbora Bryksí Stunová, Jan ermák, Jaroslav ervený, Tomáš Gur ík, Aleš Herman, Ladislav Kola ík, Marie Kola íková, Viktor Kreibich, Ladislav Kola ík Aleš Herman (Gar.)	KZ	2	0P+2C	*	PV

2342091	Project Vladislav Andronov, Libor Beránek, František Holešovský, Tomáš Kellner, Michal Koptiš, Ji í Kyncl, Martin Kyncl, Jan Mádl, Petr Mikeš, Pavel Novák	KZ	2	0P+2C	*	PV
2352091	Specialization Project	KZ	2	2C	*	PV
2362091	Project	KZ	2	0P+2C	*	PV
2372091	Project	KZ	2	0P+2C	*	PV
2382091	Specialization Project Vladimír Brdek Ladislav Vaniš Barbora Stjeberová	KZ	2	0P+2C	*	PV

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

2012091	Project	KZ	2
2112091	Project	KZ	2
2122091	Department Project	KZ	2
The content of the	e subject is given by the topic of bachelor's work after consultion with supervisor of bachelor work or the	e tutor of the department.	
2132091	Branch Project	KZ	2
2152091	Deparmental Project	KZ	2
2162091	Project	KZ	2
Student will be info	formed about basics of environmental engineering and creation of thermal comfort.	·	
2182091	Project	KZ	2
Absolvent se sezn	námí se základy oboru Procesní technika.	<u> </u>	
2222091	Project	KZ	2
2312091	Project	KZ	2
Individual asignme	ent	<u> </u>	
2322091	Project	KZ	2
On the basis of the	e preliminary submission of a bachelor thesis the students, under supervision of their supervisors, prepar	e a review summarizing and evaluating the stu	udied literatu
with particular emp knowledge or resu	phasis on experimental technologies which can be applied in their bachelor theses. They can also menti ults.	on a planned experiment or evaluate hitherto	obtained
2332091	Project	KZ	
		'	2
	Project	KZ	2
2342091	Project		
2342091 Work on specialize	Project		
2342091 Vork on specialize 2352091	Project ed tasks.	KZ	2
2342091 Vork on specialize 2352091 2362091	Project ed tasks. Specialization Project	KZ KZ	2
2342091 Work on specialize 2352091 2362091 2372091	Project ed tasks.  Specialization Project Project	KZ KZ KZ	2 2 2

Code of the group: 12BT\*6Q-BP

Name of the group: 11 2012 BTZI 6. sem bakalá ské práce

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:

poznámka 12BT\*6Q-BP 2012 BTZI 6. sem bakalářské práce

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
2123991	Bachelor Thesis	Z	4	0P+0C	*	PV
2133991	Bachelor Thesis Roman Uhlí	Z	4	0P+0C	*	PV
2163991	Bachelor Thesis	Z	4	0P+0C	*	PV
2373991	Bachelor Thesis	Z	4	0P+0C	*	PV
2313991	Bachelor Thesis Michael Valášek	Z	4	0+0	*	PV
2113991	Bachelor Thesis	Z	4	0P+0C	*	PV
2363991	Bachelor Thesis	Z	4	0P+0C	*	PV
2153991	Bachelor Thesis	Z	4	0P+0C	*	PV
2223991	Bachelor Thesis	Z	4	0P+0C	*	PV
2323991	Bachelor thesis	Z	4	0P+6C	*	PV
2183991	Bachelor Thesis Tomáš Jirout	Z	4	0P+0C	*	PV
2383991	Bachelor Thesis	Z	4	0P+0C	*	PV
2333991	Bachelor Thesis Jan Kudlá ek	Z	4	0P+0C	*	PV

2013991	Bachelor Thesis	Z	4	0P+0C	*	PV
2353991	Bachelor Thesis	Z	4		*	PV

Characteristics of the courses of this group of Study Plan: Code=12BT\*6Q-BP Name=11 2012 BTZI 6. sem bakalá ské práce

2123991	Bachelor Thesis	Z	4
2133991	Bachelor Thesis	Z	4
2163991	Bachelor Thesis	Z	4
Bachelor Thesis is	s final individual work. This work checks ability of logical independent technical thinking and treatment with technical mate	erials. There is applied acqu	iired knowledg
from previous stud	dy periods.		
2373991	Bachelor Thesis	Z	4
Each student will:	solve his individual theme under guiding of his individual supervising department specialist. Result is his/her bachelor the	esis.	•
2313991	Bachelor Thesis	Z	4
Individual assignm	nent '	,	
2113991	Bachelor Thesis	Z	4
2363991	Bachelor Thesis	Z	4
2153991	Bachelor Thesis	Z	4
2223991	Bachelor Thesis	Z	4
2323991	Bachelor thesis	Z	4
Development of th	ne bachelor thesis on an assignment under the supervision.	'	
2183991	Bachelor Thesis	Z	4
2383991	Bachelor Thesis	Z	4
Work on specialize	ed tasks related to the focus of a thesis.	' '	
2333991	Bachelor Thesis	Z	4
2013991	Bachelor Thesis	Z	4
2353991	Bachelor Thesis	Z	4
The course focuse	es on processing the final thesis within the scope of the assigned topic of the bachelor thesis. The student is acquainted	with the general principles o	of the final thes

and during regular weekly consultations with the supervisor proceeds in the professional solution of the assigned problem and at the same time works on the actual text of the final thesis. In the course of the solution, the student completes a small oral presentation where the work in progress is presented.

Name of the block: Elective courses Minimal number of credits of the block: 0

The role of the block: V

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

Name of the group: 05 2012 doporu ené seminá e

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

Credits in the group: 0

Note on the group:

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

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

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

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

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

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

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

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

Credits in the group: 0 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members)	Completion	Credits	Scope	Semester	Role
	Tutors, authors and guarantors (gar.)					
2046155	English Conversation Michele Le Blanc, Eliška Vítková, Ilona Šimice, Nina Procházková Ayyub Nina Procházková Ayyub Michele Le Blanc (Gar.)	Z	2	0P+2C	*	V
2046156	English Conversation Michele Le Blanc, Eliška Vítková, Ilona Šimice, Nina Procházková Ayyub Nina Procházková Ayyub	Z	2	0P+2C	L	V
2046071	English - Lower Intermediate  Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina Procházková Ayyub,  Hana Volejníková, Veronika Kratochvílová	Z	2	0P+2C	L	V
2046070	English - Lower Intermediate  Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina Procházková Ayyub,  Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046074	English - Advanced Michele Le Blanc, Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina Procházková Ayyub, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046075	English - Advanced Michele Le Blanc, Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina Procházková Ayyub, Hana Volejníková, Veronika Kratochvílová Ilona Šimice	Z	2	0P+2C	L	V
2046072	English - Upper Intermediate Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina Procházková Ayyub, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046073	English - Upper Intermediate Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina Procházková Ayyub, Hana Volejníková, Veronika Kratochvílová Ilona Šimice	Z	2	0P+2C	L	V
2046068	English - Beginners  Eliška Vítková, Michaela Schusová, Ilona Šimice, Hana Volejníková, Veronika  Kratochvílová <b>Michaela Schusová</b> Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046069	English - Beginners  Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina Procházková Ayyub,  Hana Voleiníková, Veronika Kratochvílová Ilona Šimice	Z	2	0P+2C	L	V
2046126	Czech Lower Intermediate  Jaroslava Kommová	Z	2	0P+2C	L	V
2046125	Czech Lower Intermediate  Jaroslava Kommová	Z	2	0P+2C	Z	V
2046118	Czech -Advanced	Z	2	0P+2C	L	V
2046117	Jaroslava Kommová  Czech -Advanced	Z	2	0P+2C	Z	V
2046127	Jaroslava Kommová  Czech - Upper Intermediate	Z	2	0P+2C	Z	V
2046128	Jaroslava Kommová  Czech - Upper Intermediate	Z	2	0P+2C	L	
	Jaroslava Kommová					
2046119	Czech Language for Beginners I.  Jaroslava Kommová  Czech Language for Beginners II.	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 <b>Michaela Schusová</b> Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046087	French - Lower Intermediate Course Michaela Schusová, Dušana Jirovská <b>Dušana Jirovská</b>	Z	2	0P+2C	L	V
2046091	French - Advanced Michaela Schusová, Dušana Jirovská <b>Dušana Jirovská</b>	Z	2	0P+2C	L	V
2046090	French - Advanced Eliška Vítková, Michaela Schusová, Dušana Jirovská Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046089	French - Upper Intermediate  Michaela Schusová, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046088	French - Upper Intermediate Eliška Vítková, Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046084	French - Beginners Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046085	French - Beginners' Course Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	L	V
2146060	Indonesian Language Course for Exchange	Z	2	0P+2C	*	V
2146061	Technical Indonesian - Course I.	Z	2	0P+2C	Z	V
2144062	Technical Indonesian - Course II.	Z,ZK	3	1P+2C	L	V

2046078	German - Lower Intermediate Course Eliška Vitková, Michaela Schusová, Jaroslava Kommová, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046079	German - Lower Intermediate Course  Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich Eliška  Vítková	Z	2	0P+2C	L	V
2046083	German - Advanced Course  Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich  Jaroslava Kommová	Z	2	0P+2C	L	V
2046082	German - Advanced Course  Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich Michaela  Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046081	German - Upper Intermediate Course  Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich Eliška Vítková	Z	2	0P+2C	L	V
2046080	German - Upper Intermediate Course  Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046076	German - Beginners Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich <b>Michaela</b>	Z	2	0P+2C	Z	V
2046077	Schusová Michaela Schusová (Gar.)  German - Beginners  Eliška Vítková, Michaela Schusová, Jaroslava Kommová, Petr Laurich Eliška  Vítková	Z	2	0P+2C	L	V
2046161	Presentations in English Eliška Vítková, Michaela Schusová, Ilona Šimice, Nina Procházková Ayyub Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	*	V
2046166	Presentations in Czech Eliška Vítková, Jaroslava Kommová, Petr Laurich Jaroslava Kommová Petr Laurich (Gar.)	Z	2	0P+2C	*	V
2046162	Presentations in German  Eliška Vítková, Jaroslava Kommová, Petr Laurich Jaroslava Kommová  Eliška Vítková (Gar.)	Z	2	0P+2C	*	V
2046164	Presentations in Russian  Eliška Vítková, Dušana Jirovská <b>Dušana Jirovská</b> Dušana Jirovská (Gar.)	Z	2	0P+2C	*	V
2046163	Presentations in French language Eliška Vítková, Dušana Jirovská <b>Dušana Jirovská</b> (Gar.)	Z	2	0P+2C	*	V
2046165	Presentations in Spanish Eliška Vítková Eliška Vítková	Z	2	0P+2C	*	V
2046137	Russian - Lower Intermediate Course  Eliška Vítková, Michaela Schusová, Hana Volejníková, Dušana Jirovská  Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046138	Russian - Lower Intermediate Course Michaela Schusová, Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046141	Russian - Advanced Eliška Vítková, Michaela Schusová, Hana Volejníková, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046142	Russian - Advanced  Michaela Schusová, Hana Volejníková, Dušana Jirovská <b>Dušana Jirovská</b>	Z	2	0P+2C	L	V
2046140	Russian - Upper Intermediate Michaela Schusová, Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046139	Russian - Upper Intermediate Eliška Vítková, Michaela Schusová, Hana Volejníková, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046136	Russian - Beginners Michaela Schusová, Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046135	Russian - Beginners Eliška Vítková, Michaela Schusová, Hana Volejníková, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046099	Spanish - Lower Intermediate Michaela Schusová, Jaime Andrés Villagómez Eliška Vítková	Z	2	0P+2C	L	V
2046098	Spanish - Lower Intermediate  Eliška Vítková, Michaela Schusová, Jaime Andrés Villagómez Eliška Vítková  Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046096	Spanish - Beginners Eliška Vítková, Michaela Schusová, Jaime Andrés Villagómez Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	٧
2046097	Spanish - Beginners Michaela Schusová, Jaime Andrés Villagómez Jaime Andrés Villagómez	Z	2	0P+2C	L	V
	Thayonez Valle And And Vinagonia		L	1		

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

2046155	English Conversation	Z	2
Improving communication	ve skills in speaking on general topics and general technical topics.		<u> </u>
2046156	English Conversation	Z	2
Improving communication	ve skills in speaking on general topics and general technical topics.	·	'
2046071	English - Lower Intermediate	Z	2
Mapped to the Common	n European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which	a student meets	either at school

Mapped to the Common European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school or at his/her free time and speaking about them. Writing in a simple way about familiar topics, reading and comprehension of simple texts. Improvement of professional language.

English - Lower Intermediate  Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about to familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.  2046074	ritten and oral skills field of studies witho	2 on advanced out difficulties.
familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.  2046074	ritten and oral skills field of studies witho	2 on advanced out difficulties.
English - Advanced The aim: comprehension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. W level. Ability to write a summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's Grammar structures on advanced level. B1 - B2.  English - Advanced Mapped to the Common European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in and active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and comp scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  English - Upper Intermediate The aim is to extend language skills taking into consideration professional English and common professional terminology. Comprehension of standardout topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1.	ritten and oral skills field of studies witho  Z n English without gre rehension of popular	on advanced out difficulties.
The aim: comprehension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. W level. Ability to write a summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's Grammar structures on advanced level. B1 - B2.  2046075	ritten and oral skills field of studies witho  Z n English without gre rehension of popular	on advanced out difficulties.
level. Ability to write a summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's Grammar structures on advanced level. B1 - B2.  2046075	field of studies witho	out difficulties.
Grammar structures on advanced level. B1 - B2.  2046075 English - Advanced  Mapped to the Common European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in and active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and comp scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046072 English - Upper Intermediate  The aim is to extend language skills taking into consideration professional English and common professional terminology. Comprehension of standardout topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1.	Z n English without gre rehension of popular	2
English - Advanced  Mapped to the Common European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in and active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and comp scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046072  English - Upper Intermediate  The aim is to extend language skills taking into consideration professional English and common professional terminology. Comprehension of standardout topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1.	n English without gre rehension of popular	_
Mapped to the Common European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in an active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and composcientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046072 English - Upper Intermediate  The aim is to extend language skills taking into consideration professional English and common professional terminology. Comprehension of standardout topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1.	n English without gre rehension of popular	_
and active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and comp scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046072 English - Upper Intermediate  The aim is to extend language skills taking into consideration professional English and common professional terminology. Comprehension of standardout topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1.	rehension of popular	at unitculties
scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046072 English - Upper Intermediate  The aim is to extend language skills taking into consideration professional English and common professional terminology. Comprehension of standardout topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1.	Z	r-scientific and
2046072 English - Upper Intermediate  The aim is to extend language skills taking into consideration professional English and common professional terminology. Comprehension of standarabout topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1.		
The aim is to extend language skills taking into consideration professional English and common professional terminology. Comprehension of standa about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1.		2
about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1.	ard English speech a	_
2046073 English - Upper Intermediate	3	
	Z	2
Mapped to the Common European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional E	I I I I I I I I I I I I I I I I I I I	n professional
terminology. Comprehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on inte	rmediate level. Broad	dening gramma
knowledge.		
2046068 English - Beginners	Z	2
Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology	(professional langua	age). A1
2046069 English - Beginners	Z	2
Mapped to the Common European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Underst	anding and use of ba	asic expression:
of general scientific terminology (professional language).		
2046126 Czech Lower Intermediate	Z	2
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about t	hem. Writing in a sin	nple way about
familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046125 Czech Lower Intermediate	Z	2
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about t	hem. Writing in a sin	nple way about
familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046118 Czech -Advanced	Z	2
Mapped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in	ı Czech without grea	at difficulties and
active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehe	ension of popular-sc	ientific and
scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.		
2046117 Czech -Advanced	Z	2
Comprehension of spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation	in discussions. Expr	essing opinions
Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical	articles.	
2046127 Czech - Upper Intermediate	Z	2
Understanding standard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. At	oility to describe expe	eriences and
events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.		
2046128 Czech - Upper Intermediate	Z	2
Mapped to the Common European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professior	al Czech and comm	non professiona
terminology. Comprehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on int	ermediate level. Broa	adening the
knowledge technical language.		
2046119 Czech Language for Beginners I.	Z	2
Basic vocabulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (prof	essional language)	
2046120 Czech Language for Beginners II.	Z	2
Mapped to the Common European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Underst	anding and use of ba	asic expressions
of general scientific terminology (professional language).		
2046086 French - 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. V	Vriting in a simple wa	ay about familia
topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046087 French - Lower Intermediate Course	Z	2
Mapped to the level of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which		
his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	nt of professional lan	
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	and understanding t	exts concerning
Mapped to the level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading	and understanding t	
Mapped to the level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading currant issues and popular scientific and technical articles.		
Mapped to the level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading currant issues and popular scientific and technical articles.    French - Advanced   French - Advan	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 Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading currant issues and popular scientific and technical articles.    French - Advanced   French - Advanced   French on topics familiar to the student. Communication with native speakers, participations.	Z tion in discussions. E	
Mapped to the level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading currant issues and popular scientific and technical articles.  2046090 French - Advanced  Comprehension of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participal opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and	Z tion in discussions. E technical articles.	Expressing
Mapped to the level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading currant issues and popular scientific and technical articles.  2046090   French - Advanced   Comprehension of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participal opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and 2046089   French - Upper Intermediate	Z tion in discussions. E technical articles.	Expressing 2
Mapped to the level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading currant issues and popular scientific and technical articles.  2046090   French - Advanced   Comprehension of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participat opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and 2046089   French - Upper Intermediate  Mapped to the level of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar topics, that a students	Z tion in discussions. E technical articles.	expressing  2  ork, at school,
Mapped to the level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading currant issues and popular scientific and technical articles.  2046090   French - Advanced   Comprehension of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participat opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and 2046089   French - Upper Intermediate  Mapped to the level of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students during free time, and talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding standard speech about familiar topics.	Z tion in discussions. E technical articles.	Expressing  2  ork, at school, d technical texts
Mapped to the level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading currant issues and popular scientific and technical articles.  2046090   French - Advanced   Comprehension of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participat opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and 2046089   French - Upper Intermediate  Mapped to the level of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students during free time, and talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and unders 2046088   French - Upper Intermediate	Z tion in discussions. E technical articles. Z comes across at wo standing general and Z	Expressing  2 ork, at school, d technical texts
Mapped to the level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading currant issues and popular scientific and technical articles.  2046090   French - Advanced   Comprehension of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participate opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and 2046089   French - Upper Intermediate  Mapped to the level of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students during free time, and talking about these topics. Ability to describe experiences and events, explain one's 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. At these topics is a student meets at work, at school, during free time, and talking about these topics. At	Z tion in discussions. E technical articles. Z comes across at wo standing general and Z	Expressing  2 ork, at school, d technical texts
Mapped to the level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading currant issues and popular scientific and technical articles.  2046090   French - Advanced   Comprehension of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participar opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and 2046089   French - Upper Intermediate   Mapped to the level of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students during free time, and talking about these topics. Ability to describe experiences and events, explain one's 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. Abserted the sevents, briefly explain one's opinions and plans. Reading and understanding general and technical texts.	Z tion in discussions. E technical articles.  Z comes across at wo standing general and Z billity to describe expo	2 ork, at school, d technical texts 2 eriences and
Mapped to the level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading currant issues and popular scientific and technical articles.  2046090   French - Advanced   Comprehension of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participar opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and 2046089   French - Upper Intermediate   Mapped to the level of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students during free time, and talking about these topics. Ability to describe experiences and events, explain one's 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. Abevents, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  2046084   French - Beginners	z tion in discussions. E technical articles.  Z comes across at we standing general and Z billity to describe experience.	2 ork, at school, d technical texts 2 eriences and
dapped to the level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading currant issues and popular scientific and technical articles.    O46090   French - Advanced comprehension of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participar pinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and 1046089   French - Upper Intermediate	z tion in discussions. E technical articles.  Z comes across at we standing general and Z billity to describe experience.	2 ork, at school, d technical texts 2 eriences and

2046085 Mapped to the level of	Franch Reginners' Course	7	2
mapped to the level of	French - Beginners´ Course Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which		
his/her free time and s	peaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of		
2146060	Indonesian Language Course for Exchange	Z	2
	nguage for Student Exchange Program to Indonesia	_ '	
2146061	Technical Indonesian - Course I.	Z	2
Second part of Indone	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
Aim: Understanding cle	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	m. Writing in a sin	nple way about
familiar topics. Reading	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 which		
	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		-
	in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compre	enension of popula	ar-scientific and
	ts from student's field of studies without difficulties. Grammar structures on advanced level.  German - Advanced Course	7	2
2046082 Comprehension of spe	German - Advanced Course ken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participation	_	_
	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and te		Lxpressing
2046081	German - Upper Intermediate Course	Z	2
	German - Opper intermediate Course Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students co	_	
* *	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. Abilit	ty to describe exp	
-	one's opinions and plans. Reading and understanding general and technical texts.		
2046076	German - Beginners	Z	2
	eryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profess	sional language)	
2046077	German - Beginners	Z	2
Mapped to the level Co	mmon European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding	and use of basic	expressions of
general scientific termi	nology (professional language).		
2046161	Presentations in English	Z	2
Preparing students to	present in English on technical topics, with a possible co-operation with specialized departments.		
2046166	Presentations in Czech	Z	2
Preparing students to	give presentations in English on technical topics, with a possible co-operation with specialized departments.		
2046162	Presentations in German	Z	2
Preparation for presen	ing technical topics in German, possibly in cooperation with specialized departments.		
2046164	Presentations in Russian	Z	2
	ing technical topics in Russian, possibly in cooperation with specialized departments.		
	Presentations in French language	Z	2
Preparation for presen	ing technical topics in French, possibly in cooperation with specialized departments.		
2046165	ing technical topics in French, possibly in cooperation with specialized departments.  Presentations in Spanish	Z	2
Preparation for presen 2046165 Preparation for presen	ing technical topics in French, possibly in cooperation with specialized departments.  Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.	Z	2
Preparation for presen 2046165 Preparation for presen 2046137	ing technical topics in French, possibly in cooperation with specialized departments.  Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.  Russian - Lower Intermediate Course	Z	2
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Preparation for present 2046165 Preparation for present 2046137 Understanding clearly topics. Reading and co	ing technical topics in French, possibly in cooperation with specialized departments.    Presentations in Spanish	Z Z iting in a simple w	2 2 ay about famili
Preparation for present 2046165 Preparation for present 2046137 Understanding clearly topics. Reading and co	ing technical topics in French, possibly in cooperation with specialized departments.    Presentations in Spanish	Z  Z iting in a simple w	2 ay about famili
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2046099	Spanish - Lower Intermediate	Z	2
Mapped to the level of C	ommon European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a stu	dent meets at sch	ool or in his/her
free time and speaking a	about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of profes	ssional language.	
2046098	Spanish - Lower Intermediate	Z	2
Understanding clearly w	hat is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wri	ting in a simple w	ay about familiar
topics. Reading and con	nprehension of simple texts. Improvement of professional language.		
2046096	Spanish - Beginners	Z	2
Aim:Understanding clea	rly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about ther	n. Writing in a sim	ple way about
familiar topics. Reading	and comprehension of simple texts. Improvement of professional language.		
2046097	Spanish - Beginners	Z	2
Mapped to the Common	European Framework of Reference Level A1. Aim: Understanding clearly what is spoken about everyday situations which a	student meets at	school or in
his/her free time and spe	eaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement o	of professional lan	guage.

## List of courses of this pass:

	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	ns.	
2011049	Numerical Mathematics	Z,ZK	4
Numerical solution	of systems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical equations, initial and boundary value problems. Numerical solution of basic linear partial differential equations by finite difference r		y differentia
2011056	Mathematics I	Z,ZK	8
	ter emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connections	s between concep	ts. Students
will also get to know	v the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: ei	gennumbers and e	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. Differenti	al operators div (d	ivergence)
	Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, f		
	ir, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green		
field, independer	ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vecto Gauss-Ostrogradskij theorem.	r field through a su	ırface. The
2012035	Algorithmization and Programming Fundamentals	KZ	4
Programming in	MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Matri	ces, vectors and o	perations.
Writting M-script. I	nput and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Syster	ms of linear equati	ons. Scripts
and functions. S	tructure of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. Str	ructures. Algorithm	ization of
simple program	s: minimum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of s	ystems of linear e	quations.
2012037	Computer Graphics	KZ	3
2012091	Project	KZ	2
2013991	Bachelor Thesis	Z	4
2016007	Mathematics I Seminar	Z	2
201A009	Mathematics III.A	ZK	2
201A021	Constructive Geometry A	ZK	3
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	The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relatio	ns.	
	The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relatio  Mathematics I.A		4
201A056	Mathematics I.A	ons. ZK	4
201A056	Mathematics I.A Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable	ZK	
201A056 201A062	Mathematics I.A Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable  Mathematics II.A	ZK ZK	4
201A056 201A062 Open and closed	Mathematics I.A Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable	ZK  ZK al operators div (d	4 ivergence)
201A056  201A062 Open and closed and curl (rotation).	Mathematics I.A Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable  Mathematics II.A set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differenti	ZK  ZK al operators div (d Fubini theorem. Tra	4 ivergence) nsformation
201A056  201A062 Open and closed and curl (rotation). of integrals to pola	Mathematics I.A Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable  Mathematics II.A  set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differenti Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, f	ZK  ZK al operators div (d Fubini theorem. Tra 's theorem. A pote	4 ivergence) nsformation
201A056  201A062 Open and closed and curl (rotation). of integrals to pola	Mathematics I.A Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable  Mathematics II.A  set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differenti Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, fur, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vecto Gauss-Ostrogradskij theorem.	ZK  ZK al operators div (d Fubini theorem. Tra 's theorem. A pote	4 ivergence) nsformation
201A056  201A062 Open and closed and curl (rotation). of integrals to pole field, independer 2021025	Mathematics I.A Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable  Mathematics II.A  set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differenti Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, fur, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vecto	ZK  ZK al operators div (d Fubini theorem. Tra 's theorem. A pote r field through a su	4 ivergence) nsformation ential vector urface. The
201A056  201A062 Open and closed and curl (rotation). of integrals to pole field, independer  2021025 Faraday's law of el	Mathematics I.A Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable  Mathematics II.A  set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differenti Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, fur, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vecto Gauss-Ostrogradskij theorem.  Physics II.	ZK  ZK al operators div (d Fubini theorem. Tra 's theorem. A pote r field through a su  Z,ZK tromagnetic waves	4 ivergence) nsformation ential vector urface. The 4 i. Interaction
201A056  201A062 Open and closed and curl (rotation). of integrals to polafield, independer  2021025 Faraday's law of el of radiation with responses.	Mathematics I.A Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable  Mathematics II.A  set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differenti Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, rr, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vecto Gauss-Ostrogradskij theorem.  Physics II.  ectromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic waves.	ZK  ZK al operators div (d Fubini theorem. Tra 's theorem. A pote r field through a su  Z,ZK tromagnetic waves periodic system of	4 ivergence) insformation ential vector urface. The 4 i. Interaction elements.
201A056  201A062 Open and closed and curl (rotation). of integrals to pola field, independer  2021025 Faraday's law of el of radiation with response and curl (rotation).	Mathematics I.A  Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable  Mathematics II.A  set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differenti Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, r., cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vecto Gauss-Ostrogradskij theorem.  Physics II.  ectromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and	ZK  ZK al operators div (d Fubini theorem. Tra 's theorem. A pote r field through a su  Z,ZK tromagnetic waves periodic system of	4 ivergence) insformation intial vector urface. The 4 i. Interaction
201A056  201A062 Open and closed and curl (rotation). of integrals to pola field, independer  2021025 Faraday's law of el of radiation with respect of radiation with respect of radiation and respect respectively.	Mathematics I.A Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable  Mathematics II.A  set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differenti Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, for cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector Gauss-Ostrogradskij theorem.  Physics II.  actromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiments.	ZK  ZK al operators div (d Fubini theorem. Tra 's theorem. A pote r field through a su  Z,ZK  tromagnetic waves periodic system of iments related to t  Z,ZK	4 ivergence) nsformatior ential vector urface. The  4 i. Interactior elements. he lectures
201A056  201A062 Open and closed and curl (rotation). of integrals to pola field, independer  2021025 Faraday's law of el of radiation with r Spectra, x-rays, ;la 2021041 Kinematics and dy waves. Fluid m	Mathematics I.A  Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable  Mathematics II.A  set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differentia function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, function given implicitly. Local and global (= absolute) extremes of a scalar and vector function. Circulation and Green ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector gauss-Ostrogradskij theorem.  Physics II.  Physics II.  Physics I.  P	ZK  ZK al operators div (d Fubini theorem. Tra 's theorem. A pote r field through a su  Z,ZK tromagnetic waves periodic system of riments related to t  Z,ZK perties of bodies. G nductors, semicon	4 ivergence) insformation initial vector inface. The  4 interaction interactio
201A056  201A062 Open and closed and curl (rotation). of integrals to pola field, independer  2021025 Faraday's law of el of radiation with r Spectra, x-rays, ;la 2021041 Kinematics and dy waves. Fluid m	Mathematics I.A  Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable  Mathematics II.A  set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differentia Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, for cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector Gauss-Ostrogradskij theorem.  Physics II.  actromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic induction of particle's motion. Hydrogen atom and ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experting physics I.  Physics I.  namics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic profectances. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Condictive field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirection.	ZK  ZK al operators div (d Fubini theorem. Tra 's theorem. A pote r field through a su  Z,ZK tromagnetic waves periodic system of riments related to t  Z,ZK perties of bodies. G nductors, semicon	4 ivergence) insformation initial vector inface. The  4 interaction interactio
201A056  201A062 Open and closed and curl (rotation). of integrals to polatical field, independer  2021025 Faraday's law of el of radiation with respectra, x-rays, ;late 2021041 Kinematics and dy waves. Fluid minsulators. Magne	Mathematics I.A Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable  Mathematics II.A set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differenti Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, if your continuous coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector Gauss-Ostrogradskij theorem.  Physics II.  Physics II.  Physics I.  Physics	ZK  ZK al operators div (d Fubini theorem. Tra 's theorem. A pote r field through a su  Z,ZK tromagnetic waves periodic system of riments related to t  Z,ZK perties of bodies. O nductors, semicon ct measurements,	4 ivergence) nsformatior ential vector urface. The  4 i. Interactior elements. he lectures 7 Dscillations ductors, regression,
201A056  201A062 Open and closed and curl (rotation). of integrals to pola field, independer  2021025 Faraday's law of el of radiation with r Spectra, x-rays, ;la 2021041 Kinematics and dy waves. Fluid m	Mathematics I.A  Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable  Mathematics II.A  set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differentia Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, for cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector Gauss-Ostrogradskij theorem.  Physics II.  actromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic induction of particle's motion. Hydrogen atom and ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experting physics I.  Physics I.  namics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic profectances. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Condictive field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirection.	ZK  ZK al operators div (d Fubini theorem. Tra 's theorem. A pote r field through a su  Z,ZK tromagnetic waves periodic system of riments related to t  Z,ZK perties of bodies. G nductors, semicon	4 ivergence) insformation intial vector urface. The  4 i. Interaction i elements. he lectures 7 Oscillations ductors,

202A025	Physics II.A	ZK	2					
	ectromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic waves.	tromagnetic waves	s. 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, ;la	Spectra, x-rays, ;laser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiments related to the lectures.							
202A041	Physics I.	ZK	3					
	namics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic pro							
waves. Fluid mechanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Conductors, semiconductors,								
insulators. Magnet	tic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect	ot measurements,	regression,					
2041061	measurements of 11 various experiments related to the lectures.	Z.ZK	2					
	English-Bachelor Exam nmon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulti	,						
mapped to the con	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	ics, to take part in	uiocuooiorio,					
2041062	German - Bachelor Exam / FME	Z,ZK	2					
	nmon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulti	•						
.,,	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 Con	nmon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulti	ies, to take part in	discussions,					
	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.							
2041064	Spanish - Bachelor Exam / FME	Z,ZK	2					
Mapped to the Con	nmon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulti	ies, 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	Z,ZK	2					
Mapped to the Con	nmon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulti	ies, to take part in	discussions,					
	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.							
2046068	English - Beginners	, Z	2					
	cabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (p							
2046069	English - Beginners	Z	2					
Mapped to the Cor	mmon European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding	and use of basic	expressions					
2046070	of general scientific terminology (professional language).	Z	2					
	English - Lower Intermediate   ng clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	_						
7 IIII. Onderstandii	familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.	witting in a simple	, way about					
2046071	English - Lower Intermediate	Z	2					
	mmon European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which a s	<del>-</del>						
	e time and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improvement							
2046072	English - Upper Intermediate	Z	2					
The aim is to exten	id language skills taking into consideration professional English and common professional terminology. Comprehension of standard English	glish speech and c	onversation					
	about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 -	B1.						
2046073	English - Upper Intermediate	Z	2					
	ommon European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional Englis							
terminology. Comp	rehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermedia	ate level. Broadeni	ng grammar					
0040074	knowledge.	7						
2046074	English - Advanced	<u>ک</u> معمل معمل مارنالم مع	2					
	hension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Written ite a summary, a report, an essay reading and comprehension of popular-scientific and scientific articles or texts from student's field or a summary, a report, an essay reading and comprehension of popular-scientific and scientific articles or texts from student's field or a summary, a report, an essay reading and comprehension of popular-scientific and scientific articles or texts from student's field or an extension of summary and scientific articles or texts from student's field or a scientific and scientific articles or texts from student's field or a scientific articles or texts from student's field or a scientific and scientific articles or texts from student's field or a scientific articles or texts from student's field or a scientific articles or texts from student's field or a scientific articles or texts from student's field or a scientific articles or texts from student's field or a scientific articles or texts from student's field or a scientific articles or texts from student's field or a scientific articles or texts from student's field or a scientific articles or texts from scientific articles or texts from scientific articles or texts from the scient							
level. Ability to Wi	Grammar structures on advanced level. B1 - B2.	or studies without	difficulties.					
2046075	English - Advanced	Z	2					
	ommon European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in Eng							
	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 voc	abulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (pr	ofessional langua	ge)					
2046077	German - Beginners	Z	2					
Mapped to the lev	vel Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding and	d use of basic exp	ressions of					
	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 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.							
2046079	German - Lower Intermediate Course	Z	2					
	el of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a s e time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvemen							
2046080	German - Upper Intermediate Course	Z	2					
	German - Opper Intermediate Course   							
Jingorotarianing St	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.	to accombe expens	5000 and					
2046081	German - Upper Intermediate Course	Z	2					
	/el of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students com	<del>-</del>	1					
	nd talking about these topics. Ability to describe experiences and events, explain one s opinions and plans. Reading and understanding							
2046082	German - Advanced Course	Z	2					
Comprehension	of spoken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participation	n in discussions. E	xpressing					
opinions.	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a	nd technical articl	es.					

2046083	German - Advanced Course	Z	2
	l of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in Ge	•	
and active participa	ation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehe	nsion of popular-se	cientific and
0040004	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.		
2046084	French - Beginners	Z	2
Understanding clea	urly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing topics. Reading and comprehension of simple texts. Improvement of professional language.	j in a simple way a	oout familiar
2046095		7	2
2046085	French - Beginners´ Course el of Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which a	_	_
	te 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
	right what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	_	l
	topics. Reading and comprehension of simple texts. Improvement of professional language.	, a cp.ca, a.	
2046087	French - Lower Intermediate Course	Z	2
	el of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a	student meets at s	chool or in
his/her free tim	e and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	of professional lar	nguage.
2046088	French - Upper Intermediate	Z	2
Understanding st	andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	to describe experi	ences and
	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.		
2046089	French - Upper Intermediate	Z	2
Mapped to the lev	el of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar topics, that a students com	nes across at work	at school,
during free time, ar	d talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understandi	ng general and ted	hnical texts.
2046090	French - Advanced	Z	2
Comprehension	of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participatior	in discussions. Ex	pressing
opinions.	Nritten skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a	and technical articl	es.
2046091	French - Advanced	Z	2
Mapped to the	evel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on to	pics familiar to the	student.
Communication wit	h native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and u	nderstanding texts	concerning
	currant issues and popular scientific and technical articles.		
2046096	Spanish - Beginners	Z	2
Aim:Understandin	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Writing in a simple	way about
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046097	Spanish - Beginners	Z	2
Mapped to the C	ommon European Framework of Reference Level A1. Aim: Understanding clearly what is spoken about everyday situations which a s	tudent meets at so	chool or in
his/her free tim	e and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	of professional lar	nguage.
2046098	Spanish - Lower Intermediate	Z	2
Understanding clea	rly 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 a	bout familiar
	topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046099	Spanish - Lower Intermediate	Z	2
Mapped to the leve	of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a studer	nt meets at school	or in his/her
free time a	nd speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of p	professional langua	age.
2046117	Czech -Advanced	Z	2
Comprehension of	spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in dis	cussions. Expressi	ng opinions.
Writte	en skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and t	echnical articles.	
2046118	Czech -Advanced	Z	2
Mapped to the leve	l of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czec	ch without great dif	ficulties and
active participati	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehens	ion of popular-scie	entific and
	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.	ı	
2046119	Czech Language for Beginners I.	Z	2
	abulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p		
2046120	Czech Language for Beginners II.	Z	2
Mapped to the Con	mon European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding	g and use of basic	expressions
	of general scientific terminology (professional language).	<u> </u>	Г
2046125	Czech Lower Intermediate	Z	2
Aim: Understandin	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	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: Understandin	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Writing in a simple	way about
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046127	Czech - Upper Intermediate	Z	2
Understanding st	andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	to describe experi	ences and
	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.		
2046128	Czech - Upper Intermediate	Z	2
	nmon European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional Cz		
terminology. Con	aprehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on interm	iediate level. Broad	ening the
004040=	knowledge technical language.	_	_
2046135	Russian - Beginners	Z	2
	abulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p		
2046136	Russian - Beginners	Z	2
iviapped to the levi	el of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understanding	and use of basic e	expressions
	of general scientific terminology (professional language)		

Russian - Lower Intermediate Course 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 topics. Reading and comprehension of simple texts. Improvement of professional language.  Russian - Lower Intermediate Course  Russian - Lower Intermediate Course  To mon European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a student meets at schooling about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language as well as lectures in Russian - Upper Intermediate  Russian - Seading and understanding general and technical texts.  Russian - Upper Intermediate  Russian - Advanced	ee time and speaking about them. Writing in a simple way about for of professional language.  Z about everyday situations which a student meets at school or in the hension of simple texts. Improvement of professional language.  Z ne, and talking about these topics. Ability to describe experiences ding general and technical texts.  Z about familiar matters that a student meets at work, at school, doors and plans. Reading and understanding general and technical texts.  Z incation with native speakers, participation in discussions. Expres
topics. Reading and comprehension of simple texts. Improvement of professional language.  Russian - Lower Intermediate Course  To mon European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a student meets at schooling about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language as well as lectures in Russian - Upper Intermediate  Russian - Upper Intermediate  Z  Russian - Upper Intermediate  Russian - Upper Intermediate  Russian - Upper Intermediate  Z  Russian - Upper Intermediate  Russian - Upper Intermediate  Russian - Upper Intermediate  Z  Russian - Advanced  Russian - Advanced  Russian - Advanced  Z  In language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation in discussions wills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical are	of professional language.  Z about everyday situations which a student meets at school or in the hension of simple texts. Improvement of professional language.  December of professional language.  Z ne, and talking about these topics. Ability to describe experiences ding general and technical texts.  Z about familiar matters that a student meets at work, at school, doors and plans. Reading and understanding general and technical texts.  Z incation with native speakers, participation in discussions. Express
Russian - Lower Intermediate Course  To mon European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a student meets at schooling about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional langer Russian - Upper Intermediate  Detected about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to describe experiences, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  Russian - Upper Intermediate  Zonton European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student meets at work, at stathese topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding general and Russian - Advanced  Russian - Advanced  Zonton Indication with native speakers, participation in discussions wills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical are	about everyday situations which a student meets at school or in Interest of simple texts. Improvement of professional language.  Z  ne, and talking about these topics. Ability to describe experiences ding general and technical texts.  Z  about familiar matters that a student meets at work, at school, dons and plans. Reading and understanding general and technical texts.  Z  incation with native speakers, participation in discussions. Expres
mon European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a student meets at schooling about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional langer Russian - Upper Intermediate  Deech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to describe experievents, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  Russian - Upper Intermediate  Z  Tomon European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student meets at work, at standard topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding general and Russian - Advanced  Russian - Advanced  Z  I language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation in discussions wills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical are	hension of simple texts. Improvement of professional language.  Z  Ine, and talking about these topics. Ability to describe experiences ding general and technical texts.  Z  about familiar matters that a student meets at work, at school, dons and plans. Reading and understanding general and technical Z  inication with native speakers, participation in discussions. Expres
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	ng currant issues and popular scientific and technical articles.
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speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding te	write an essay or a report. Reading and understanding texts conc
currant issues and popular scientific and technical articles.	
English Conversation Z	Z
Improving communicative skills in speaking on general topics and general technical topics.	I general technical topics.
English Conversation Z	Z
Improving communicative skills in speaking on general topics and general technical topics.	I general technical topics.
Presentations in English Z	Z
Preparing students to present in English on technical topics, with a possible co-operation with specialized departments.	operation with specialized departments.
Presentations in German Z	Z
Preparation for presenting technical topics in German, possibly in cooperation with specialized departments.	ition with specialized departments.
Presentations in French language Z	Z
Preparation for presenting technical topics in French, possibly in cooperation with specialized departments.	The state of the s
Presentations in Russian Z	7
Preparation for presenting technical topics in Russian, possibly in cooperation with specialized departments.	I I
Preparation for presenting technical topics in Spanish, possibly in cooperation with specialized departments.	I I
eparing students to give presentations in English on technical topics, with a possible co-operation with specialized departments.	-
	e co-operation with specialized departments.
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	currant issues and popular scientific and technical  English Conversation Improving communicative skills in speaking on general topics and  English Conversation Improving communicative skills in speaking on general topics and  Presentations in English Preparing students to present in English on technical topics, with a possible co-  Presentations in German Preparation for presenting technical topics in German, possibly in coopera  Presentations in French language Preparation for presenting technical topics in French, possibly in cooperat  Presentations in Russian Preparation for presenting technical topics in Russian, possibly in cooperat  Presentations in Spanish

2132091	Branch Project	KZ	2
2133013	Engineering Design III.	Z	2
<u>'</u>	Design of assembly unit (draft drawing, detail drawing, assembly drawing, technical report)	· 	
2133014	Engineering Design IV.	Z	2
2133025	Design	Z	4
	n calculations and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft cou	· , •	
2133991	Bachelor Thesis	Z	4
2141504	Electric Circuits and Electronics	Z,ZK	4
•	electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators on hics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilized)	•	
	olifier). Analogue and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, microp	• •	perational
2141505	Electrical machines and drives	Z,ZK	4
3-phase transformer, op	ower and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Trar erating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, spee nines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque charact Low-voltage distribution system.	ed-torque characteris	tic, speed
2144062	Technical Indonesian - Course II.	Z,ZK	3
1	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	1.5	
2152091	Deparmental Project	KZ	2
2153005	Fundamentals of Energy Conversions	Z	1
2153991	Bachelor Thesis	Z	4
2162091	Project	KZ	2
0400004	Student will be informed about basics of environmental engineering and creation of thermal comfort.		
2163991	Bachelor Thesis	Z	4
acheior Thesis is final ind	lividual work. This work checks ability of logical independent technical thinking and treatment with technical materials. Ther from previous study periods.	e is applied acquired	i knowled
2181026	Momentum, Mass and Heat Transfer	Z,ZK	5
2101020	Womentum, was and near nansier		
Fundamentals of transpo	rt phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanic		Residence
•	rt phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanic	cal energy equation.	
•	ous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and the	cal energy equation.	
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