Study plan

Name of study plan: 14 80 85 00 DVES MAT 2012 P

Faculty/Institute/Others:
Department:
Branch of study guaranteed by the department: Welcome page
Garantor of the study branch:
Program of study: Welcome page
Type of study: unknown full-time
Required credits: 116
Elective courses credits: 65
Sum of credits in the plan: 181
Note on the plan: SP12DVES-MUSTR # SP12BVES-EKO-P # první pokus

Name of the block: Compulsory courses in the program Minimal number of credits of the block: 107 The role of the block: P

Code of the group: 12BVP4P Name of the group: 09 2012 BVES 4.sem prezen ní povinné Requirement credits in the group: In this group you have to gain 22 credits Requirement courses in the group: In this group you have to complete 5 courses Credits in the group: 22 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2342005	Quality Control	KZ	2	1P+1C+1L	*	Р
2341014	Technology II.	Z,ZK	5	2P+0C+2L	*	Р

Characteristics of the courses of this group of Study Plan: Code=12BVP4P Name=09 2012 BVES 4.sem prezen ní povinné

2342005	Quality Control	KZ	2						
Basic guality control terms, where is guality created, who is responsible for a guality. Basic statistical terms and distributions. Statistical methods: statistical process control, sta									
sampling. Tools and me	sampling. Tools and methods for a quality assurance during product lifetime cycle. Standards 9 000 and 14 000, certification of quality control systems.								
2341014	Technology II.	Z,ZK	5						
mechanics of chip forma	mechanics of chip formation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining economics. Automation of processes								
programming of manufa	acture. Engineering metrology. Assembly techniques. Introduction to process planing.								

Code of the group: 12BV*5P

Name of the group: 12 2012 BVES 5.sem povinné

Requirement credits in the group: In this group you have to gain 11 credits

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

Credits in the group: 11

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2141204	Introduction to Electrical Engineering for Technology Jan Chyský, Lubomír Musálek, Martin Novák Lubomír Musálek Jan Chyský (Gar.)	Z,ZK	4	2P+0C+2L	*	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=12BV*5P Name=12 2012 BVES 5.sem povinné

 2141204
 Introduction to Electrical Engineering for Technology
 Z,ZK
 4

 Elements of electrical circuits, analysis of electrical circuits as DC and AC. El. Power and Energy. Principle and typical parameters diodes, transistors, thyristors, operation amplifiers.

 Analogue and digital circuits. AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Transformer. Induction machines. Synchronous machines.

 DC-machines

2383001 Fundamentals of Law

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

7

2

Code of the group: 12BV*5P-MAT Name of the group: 14 2012 BVES 5.sem zam MAT povinné Requirement credits in the group: In this group you have to gain 18 credits Requirement courses in the group: In this group you have to complete 4 courses Credits in the group: 18 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2341001	Metrology	Z,ZK	5	2P+0C+2L	*	Р
2331505	Welding Technology	Z,ZK	4	2P+1C	*	Р
2322041	Heat treatment Jana Sobotová, Martin Ku ík Jana Sobotová Jana Sobotová (Gar.)	KZ	4	2P+1C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12BV*5P-MAT Name=14 2012 BVES 5.sem zam MAT povinné

2341001	Metrology Z,ZK								
Metrology, intergration into quality control, legal metrology, metrology system. Geometrical quantities metrology. Measurement uncertainty. Primary and secondary standarts. Measurem									
in 1, 2, end 3 coordinat	in 1, 2, end 3 coordinates. Laserinterferometres and their applications. Geometrical surface properties. Form - and position deviations. Surface structure - roughness, wawiness.								
Measurement automat	sation.								
2331505	Welding Technology	Z,ZK	4						
2322041 Heat treatment KZ 4									
Theoretical fundament	als of heat treatment, basic processes of heat and chemical-heat treatment of ferrous and non-ferrous metals, excursion focu	sed on the given t	opic						

Code of the group: 12BV*6P

Name of the group: 15 2012 BVES 6.sem povinné

Requirement credits in the group: In this group you have to gain 9 credits

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

Credits in the group: 9

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2331071	Automation of Production Processes	Z,ZK	5	3P+2C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12BV*6P Name=15 2012 BVES 6.sem povinné

 2331071
 Automation of Production Processes
 Z,ZK
 5

 Automation of basic technological processes - casting, welding, forming and finishing. Facilities and equipment required to automate offices. Mechanization and automation in iron and steel foundries. Automation and robotics of die casting process, including other peripherals. Designing and programming of robotic welding centers. Designing and programming of robotic workstations for sheet metal forming. Design of automated forging cells. Design of automated finishing lines.

Code of the group: 12BV*6P-MAT

Name of the group: 16 2012 BVES 6.sem zam MAT povinné

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

Requirement courses in the group: In this group you have to complete 5 courses

Credits in the group: 22

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2323993	Bachelor Thesis Jana Sobotová	Z	5	0P+6C	*	Р
2321501	Jana Sobotová	Z,ZK	4	3P+1C	*	Р

2321503	Technical testing of materials Elena ižmárová	Z,ZK	5	2P+2C+0L	*	Р
Characteristic	cs of the courses of this group of Study Plan: Code=12E	3V*6P-MAT Name=16 2012 E	BVES 6.	.sem zam N	/AT po	vinné
2323993	Bachelor Thesis				Z	5
2321501	2321501					
The course charac	cterizes individual groups of new construction materials. In addition to the de	evelopment and physical nature of the	se materia	1	,ZK	used types of
recently developed	Leterizes individual groups of new construction materials. In addition to the de ad materials, their basic characteristics and mechanical properties are listed.			als, the most co	, ommonly (
	ed materials, their basic characteristics and mechanical properties are listed.			als, the most co	, ommonly (

Code of the group: 12DVP1P-KMEN

Name of the group: 00 2012 D kmenové 1. semestr VES prezen ní

Requirement credits in the group:

Requirement courses in the group:

Credits in the group: 0

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2182019	Chemistry Radek Šulc, Martin Dostál, Vojt ch B lohlav, Stanislav Solna , Jan Sko ilas Radek Šulc Radek Šulc (Gar.)	КZ	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	*	Ρ
2372041	Computer Support for Study	KZ	3	1P+1C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12DVP1P-KMEN Name=00 2012 D kmenové 1. semestr VES prezen ní

2182019	Chemistry	KZ	3
General chemistry from	the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properti	es of matter, therr	nodynamics,
phase equilibrium, chen	nical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and bioch	emistry. Laborato	ry practice is
oriented upon the mater	rial properties measurement.		
2011021	Constructive Geometry	Z,ZK	6
The subject is focused of	on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.		
2011056	Mathematics I	Z,ZK	8
In the course, greater e	nphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connec	tions between co	ncepts. Students
will also get to know the	procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic area	s: eigennumbers a	and eigenvectors
of a matrix, Taylor polyn	omial, integral as a limit function, integration of some special functions.		
2372041	Computer Support for Study	KZ	3
The course introduces s	tudents into creating technical and professional documents on computers or Web and into realizing technical computations w	ith the use of com	puters. Students
gain practical skills by c	reating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical	-based WWW pag	je.

Code of the group: 12DVP2P-KMEN

Name of the group: 00 2012 D kmenové 2. semestr VES prezen ní

Requirement credits in the group: In this group you have to gain 25 credits

Requirement courses in the group: In this group you have to complete 5 courses

Credits in the group: 25

Note on the group:

12B**2P-KMEN

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
2021041	Physics I.	Z,ZK	7	4P+1L	*	Р
2011062	Matematika II. Radka Keslerová	Z,ZK	8	4P+4C	*	Р
2322029	Materials Science I. Jana Sobotová, Eliška Gal íková, Ji í Cejp, Pavlína Hájková, Jan Kr il, Vladimír Mára, Lucie Pilsová, Ta ana Vacková Jana Sobotová Jana Sobotová (Gar.)	κz	3	2P+1L	2	Ρ

2012037	Computer Graphics Marta Hlavová, Ji í Holman, Nikola Pajerová, Martin Hanek, Jan Karel, Ivana Linkeová, Jaroslav Cibulka Ivana Linkeová Ivana Linkeová (Gar.)	KZ	3	1P+1C	*	Ρ
2333017	Surface Treatment	Z	3	1P+1C	*	Р
2131002	Engineering Design II Eliška Cézová, Jan Flek, Jan Kanaval, Karel Petr, Martin Dub, Martin Havlí ek, Jan Hoidekr, František Lopot, Roman Uhlí Karel Petr Karel Petr (Gar.)	Z,ZK	4	2P+3C	2	Р
2333038	Fundamentals of Technology I.	Z	3	1P+1C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12DVP2P-KMEN Name=00 2012 D kmenové 2. semestr VES prezen ní

2021041Physics I.Z,ZK7Kinematics and dynamics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic properties of bodies. Oscillations,
waves. Fluid mechanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Conductors, semiconductors,
insulators. Magnetic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect measurements, regression,
measurements of 11 various experiments related to the lectures.Z,ZK8

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

2322029 Materials Science I. History and present state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, defor

	ucture and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, ir		
2012037	Computer Graphics	KZ	3
2333017	Surface Treatment	Z	3
Introduction to the surfa	ce treatments - branch signification and objects. Principles of corrosion, types and corrosion distribution. Anticorrosive preve	ntion in manufactu	iring, method
anticorrosive preventior	. Corrosion testing. Surface pre-treatment. Converse coatings, enamels. Inorganic coatings, electroplating, hot-dip galvanizin	g. Organic coating	gs. Ecological
aspects of surface treat	ments.		
2131002	Engineering Design II	Z,ZK	4
Principles of ISO GPS (Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surfa	ice texture, geome	etrical tolerance,
dimensional loops, toler	ancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice the	ir knowledge from	lectures.
2333038	Fundamentals of Technology I.	Z	3
Production processes in	nengineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, tec	chnical metals. Pro	oduction of pig
iron and steel. Casting:	modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming te	chnology. Hot and	d cold forging.

welding and arc welding with coated electrodes. Thermal cutting.

Code of the group: 12DVP3P-KMEN

Name of the group: 00 2012 D kmenové 3. semestr redukované pro VES prezen ní Requirement credits in the group: Requirement courses in the group:

Credits in the group: 0

Note on the group:

12BV*3P-KMEN-R

ΚZ

3

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Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2021025	Physics II.	Z,ZK	4	1P+2L	3	Р
2011009	Mathematics III Radka Keslerová, Ji í Holman, Gejza Dohnal, Marta ertíková, Vladimír Hric, Jan Valášek, Lud k Beneš, Tomáš Bodnár, Tomáš Neustupa, Stanislav Kra mar Stanislav Kra mar (Gar.)	Z,ZK	5	2P+2C	*	Ρ
2321039	Materials Science II. Jana Sobotová, Eliška Gal íková, Ji í Cejp, Pavlína Hájková, Jan Kr il, Vladimír Mára, Lucie Pilsová, Ta ana Vacková, Jan Walter, Jana Sobotová Jana Sobotová (Gar.)	Z,ZK	4	2P+2L	*	Ρ
2331068	Technology I.	Z,ZK	5	2P+2C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12DVP3P-KMEN Name=00 2012 D kmenové 3. semestr redukované pro VES prezen ní

2021025	Physics II.	Z,ZK	4				
Faraday's law of electron	Faraday's law of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic waves. Interacti						
of radiation with matter.	Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom a	nd periodic syster	m of elements.				
Spectra, x-rays, ;laser. I	Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 e	xperiments relate	d to the lectures.				
2011009	Mathematics III	Z,ZK	5				
An introductory course	n ordinary differential equation and infinite series.						
2321039	Materials Science II.	Z,ZK	4				
Fundamentals of metallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and thermo-mechanical processing,							
technical iron-carbon al	echnical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materials.						

2331068	Technology I.	Z,ZK	5
Foundry properties of m	etals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of I	orming processes	. Semi-products,
heating-up. Cutting. Col	d and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. Brazing. Surface treatments.		

Name of the block: Compulsory elective courses Minimal number of credits of the block: 9 The role of the block: PV

Code of the group: 12BV*4Q-BZJ VES Name of the group: 11 2012 bakalá ské zkoušky z jazyk pro VES 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:

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

Characteristics of the courses of this group of Study Plan: Code=12BV*4Q-BZJ VES Name=11 2012 bakalá ské zkoušky z jazyk pro VES

2041061	English-Bachelor Exam	Z,ZK	2				
Mapped to the Common	European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	iculties, to take pa	rt in discussions,				
to write a summary, a re	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 Common	European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	iculties, to take pa	rt in discussions,				
to write a summary, a re	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 Common	European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	iculties, to take pa	rt in discussions,				
to write a summary, a re	sport and an essay, to read technical texts, to master grammar at advanced level.						
2041065	Russian - Bachelor Exam / FME	Z,ZK	2				
Mapped to the Common	European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	iculties, to take pa	rt in discussions,				
to write a summary, a re	sport and an essay, to read technical texts, to master grammar at advanced level.						
2041064	Spanish - Bachelor Exam / FME	Z,ZK	2				
Mapped to the Common	oped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions,						
to write a summary, a re	eport and an essay, to read technical texts, to master grammar at advanced level.						

Code of the group: 12BV*4Q-ZAM

Name of the group: 10 2012 BVES 4.sem zam 1povvol

Requirement credits in the group: In this group you have to gain at least 5 credits (at most 10) Requirement courses in the group: In this group you have to complete at least 1 course (at most 2) Credits in the group: 5

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2321067	Technical Application of Materials Stanislav Krum	Z,ZK	5	3P+1C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12BV*4Q-ZAM Name=10 2012 BVES 4.sem zam 1povvol

 2321067
 Technical Application of Materials
 Z,ZK
 5

 P edm t popisuje aplikovatelnost jednotlivých skupin inženýrských materiál a jejich odpovídající vlastnosti. Rovn ž se v nuje aktuálním vývojovým trend m t chto skupin. The subject describes applicability of specific engineering material types and their characteristics. It deals with the current development trends in these materials as well.

Code of the group: 12BV*5Q-OP

Name of the group: 13 2012 BVES 5.sem 1povvol oborové projekty

Requirement credits in the group: In this group you have to gain at least 2 credits (at most 8) Requirement courses in the group: In this group you have to complete at least 1 course (at most 4) Credits in the group: 2

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2322091	Project Jana Sobotová, Ji í Cejp, Pavlína Hájková, Jan Kr il, Vladimír Mára, Ta ana Vacková, Jakub Horník, Ladislav Cvr ek, Elena ižmárová, Jana Sobotová Jana Sobotová (Gar.)	ΚZ	2	0P+2C	*	PV
2332091	Project	KZ	2	0P+2C	*	PV
2342091	Project	KZ	2	0P+2C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12BV*5Q-OP Name=13 2012 BVES 5.sem 1povvol oborové projekty

2322091	Project	KZ	2					
On the basis of the p	On the basis of the preliminary submission of a bachelor thesis the students, under supervision of their supervisors, prepare a review summarizing and evaluating the studied literatu							
with particular emph	with particular emphasis on experimental technologies which can be applied in their bachelor theses. They can also mention a planned experiment or evaluate hitherto obtained							
knowledge or results	L.							
2332091	Project	KZ	2					
2342091	Project	KZ	2					
Work on specialized tasks.								

Name of the block: Elective courses Minimal number of credits of the block: 0 The role of the block: V

Code of the group: 12BV**V-ALFA Name of the group: 02 2012 ALFA volitelné pro VES Requirement credits in the group: Requirement courses in the group: Credits in the group: 0 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
202A041	Physics I.	ZK	3	0P+0L	*	V
201A021	Constructive Geometry A Ivana Linkeová	ZK	3	0P+0C	*	V
201A056	Mathematics I.A Radka Keslerová	ZK	4	0P+0C	*	V
201A062	Mathematics II.A Radka Keslerová	ZK	4	0P+0C	*	V

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

202A041 Physics I. ΖK 3 Kinematics and dynamics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic properties of bodies. Oscillations, waves. Fluid mechanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Conductors, semiconductors, insulators. Magnetic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect measurements, regression, measurements of 11 various experiments related to the lectures. 201A021 Constructive Geometry A ΖK 3 The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations. 201A056 ΖK 4 Mathematics I.A Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable 201A062 Mathematics II.A ΖK Δ Open and closed set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differential operators div (divergence) and curl (rotation). Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, Fubini theorem. Transformation of integrals to polar, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green's theorem. A potential vector field, independence of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector field through a surface. The Gauss-Ostrogradskij theorem.

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:

Te 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 zeiména předměty uvedené v této skupině

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

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

2026016	Physics - Seminar	Z	2
The subject is mainly 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: 0 Note on the group: Code

Code	(in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2046155	English Conversation Ilona Šimice, Michele Le Blanc Ilona Šimice Michele Le Blanc (Gar.)	Z	2	0P+2C	*	V
2046156	English Conversation Ilona Šimice, Michele Le Blanc	Z	2	0P+2C	L	V
2046071	English - Lower Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová	Z	2	0P+2C	L	V
2046070	English - Lower Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	z	V
2046074	English - Advanced Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová, Michele Le Blanc Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	z	V
2046075	English - Advanced Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová, Michele Le Blanc Ilona Šimice Ilona Šimice (Gar.)	Z	2	0P+2C	L	V
2046072	English - Upper Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046073	English - Upper Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Ilona Šimice Ilona Šimice (Gar.)	Z	2	0P+2C	L	V
2046068	English - Beginners Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	z	V
2046069	English - Beginners Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Ilona Šimice	z	2	0P+2C	L	V
2046126	Czech Lower Intermediate Jaroslava Kommová	Z	2	0P+2C	L	V
2046125	Czech Lower Intermediate Jaroslava Kommová	Z	2	0P+2C	Z	V
2046118	Czech -Advanced Jaroslava Kommová	Z	2	0P+2C	L	V
2046117	Czech -Advanced Jaroslava Kommová	Z	2	0P+2C	Z	V
2046127	Czech - Upper Intermediate Jaroslava Kommová	Z	2	0P+2C	Z	V

2046128	Czech - Upper Intermediate Jaroslava Kommová	Z	2	0P+2C	L	v
2046119	Czech Language for Beginners I.	Z	2	0P+2C	Z	v
2046120	Jaroslava Kommová Czech Language for Beginners II. Jaroslava Kommová	Z	2	0P+2C		v
2046086	Jaroslava Kolinilova French - Lower Intermediate Course Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	v
2046087	French - Lower Intermediate Course Michaela Schusová, Dušana Jirovská Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	L	v
2046091	French - Advanced Michaela Schusová, Dušana Jirovská Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	L	v
2046090	Michaela Schusová, Dušana Jirovská, Eliška Vítková Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	v
2046089	French - Upper Intermediate Michaela Schusová, Dušana Jirovská Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	L	v
2046088	French - Upper Intermediate Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	v
2046084	French - Beginners Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	v
2046085	French - Beginners' Course Michaela Schusová, Dušana Jirovská Michaela Schusová Dušana Jirovská (Gar.)	Z	2	0P+2C	L	v
2146060	Indonesian Language Course for Exchange	Z	2	0P+2C	*	V
2146061	Technical Indonesian - Course I.	Z	2	0P+2C	Z	V
2144062	Technical Indonesian - Course II.	Z,ZK	3	1P+2C	L	V
2046078	German - Lower Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	v
2046079	German - Lower Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	v
2046083	German - Advanced Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Jaroslava Kommová Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	v
2046082	German - Advanced Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	v
2046081	German - Upper Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	v
2046080	German - Upper Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	v
2046076	German - Beginners Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Petr Laurich (Gar.)	Z	2	0P+2C	Z	v
2046077	German - Beginners Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	v
2046161	Presentations in English Michaela Schusová	Z	2	0P+2C	*	v
2046166	Presentations in Czech Jaroslava Kommová	Z	2	0P+2C	*	v
2046162	Presentations in German Jaroslava Kommová, Eliška Vítková, Petr Laurich Jaroslava Kommová Jaroslava Kommová (Gar.)	Z	2	0P+2C	*	v
2046164	Presentations in Russian	Z	2	0P+2C	*	v
2046163	Dušana Jirovská Presentations in French language Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	*	v
2046165	Presentations in Spanish Eliška Vítková	Z	2	0P+2C	*	V
2046137	Russian - Lower Intermediate Course Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	v
2046138	Russian - Lower Intermediate Course Michaela Schusová, Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	v
2046141	Russian - Advanced Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	v

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

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

2046155 English Conversation	Z	2
Improving communicative skills in speaking on general topics and general technical topics.		
2046156 English Conversation	Z	2
Improving communicative skills in speaking on general topics and general technical topics.		
2046071 English - Lower Intermediate	Z	2
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. Improvem	ent of professiona	al language.
2046070 English - Lower Intermediate	Z	2
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	m. Writing in a sir	nple way about
familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.		
2046074 English - Advanced	Z	2
The aim: comprehension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Writ	ten and oral skills	on advanced
level. Ability to write a summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's field	ld of studies with	out difficulties.
Grammar structures on advanced level. B1 - B2.		
2046075 English - Advanced	Z	2
Mapped to the Common European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in E	nglish without gre	eat 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 compret	nension of popula	r-scientific and
scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.		
2046072 English - Upper Intermediate	Z	2
The aim is to extend language skills taking into consideration professional English and common professional terminology. Comprehension of standard	I English speech a	and conversation
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
Mapped to the Common European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional En	•	· .
terminology. Comprehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on interm	iediate level. Broa	dening grammar
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 (p	-	
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. Understan	ding and use of ba	asic expressions
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 the	m. Writing in a sir	nple way about
familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046125 Czech Lower Intermediate		2
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	m. Writing in a sir	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 C	•	
active participation 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.	sion of popular-sc	sientine and
	Z	2
2046117 Czech -Advanced		2
Comprehension of spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical and		
2046127 Czech - Upper Intermediate	Ticles.	2
Understanding standard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abili	. – .	_
events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.	ly to describe exp	chences anu
,,		

2040429		7	
2046128 Mapped to the Commo	Czech - Upper Intermediate	Z Czech and comm	2 2 2 2 2
	nsion of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on interr		
knowledge technical la			U U
2046119	Czech Language for Beginners I.	Z	2
Basic vocabulary of ev	ryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profest	sional language)	
2046120	Czech Language for Beginners II.	Z	2
	n European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understand	ding and use of b	asic expressions
	ninology (professional language).		
2046086	French - Lower Intermediate Course	Z	2
	what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wri	iting in a simple w	ay about familia
	nprehension of simple texts. Improvement of professional language.	7	2
2046087	French - Lower Intermediate Course	Z a student meets	2
	eaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement c		
2046091	French - Advanced	7	2
	Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on top	pics familiar to the	1
	tive speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading an		
currant issues and pop	ular scientific and technical articles.		
2046090	French - Advanced	Z	2
Comprehension of spo	en language as well as lectures in French on topics familiar to the student. Communication with native speakers, participation	n in discussions.	Expressing
opinions. Written skills.	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and te	chnical articles.	
2046089	French - Upper Intermediate	Z	2
	Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar topics, that a students co		
-	Iking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understa		
2046088	French - Upper Intermediate	Z	2
-	d speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abilit	ty to describe exp	eriences and
	ne's opinions and plans. Reading and understanding general and technical texts.	-	-
2046084	French - Beginners	Z	2
	what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wri	iting in a simple w	ay about familia
	nprehension of simple texts. Improvement of professional language.	-	-
2046085	French - Beginners' Course	Z	2
	Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which		
	eaking 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	7	2
2146061	Technical Indonesian - Course I.	Z	2
	ian Language for Student Exchange Program to Indonesia	7 71/	2
2144062	Technical Indonesian - Course II.	Z,ZK	3
		7	2
2046078	German - Lower Intermediate Course	Z Writing	
-	arly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking abc eading and comprehension of simple texts. Improvement of professional language.	but them. writing	in a simple way
		Z	2
2046079	German - Lower Intermediate Course [] Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations whicl		2 either at schoo
	nd speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts. Improvement		
2046083	German - Advanced Course	7	2
	Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in	German without	-
	in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compre		-
	s from student's field of studies without difficulties. Grammar structures on advanced level.		
2046082	German - Advanced Course	Z	2
	ken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participation	on in discussions	1
opinions. Written skills.	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and te	chnical articles.	
2046094	German - Upper Intermediate Course	Z	2
2046081			ork at school
	Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar topics, that a students co	omes across at w	urk, at school,
Mapped to the level of			
Mapped to the level of	Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar topics, that a students co		
Mapped to the level of during free time, and ta 2046080	Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar topics, that a students control liking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understa	nding general an Z	d technical texts
Mapped to the level of during free time, and ta 2046080 Understanding standar	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of Iking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understa German - Upper Intermediate Course	nding general an Z	d technical texts
Mapped to the level of during free time, and ta 2046080 Understanding standar	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of king about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understa	nding general an Z	d technical texts
Mapped to the level of during free time, and to 2046080 Understanding standar events, briefly explain 2046076	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of Iking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understa German - Upper Intermediate Course d speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abilit ne's opinions and plans. Reading and understanding general and technical texts.	nding general and Z ty to describe exp Z	d technical texts
Mapped to the level of during free time, and ta 2046080 Understanding standar events, briefly explain 2046076 Basic vocabulary of ev	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of Iking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understand German - Upper Intermediate Course d speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability ne's opinions and plans. Reading and understanding general and technical texts.	nding general an Z ty to describe exp Z sional language)	d technical texts 2 veriences and 2 t corresponds to
Mapped to the level of during free time, and ta 2046080 Understanding standar events, briefly explain of 2046076 Basic vocabulary of ev the Common European 2046077	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of German - Upper Intermediate Course d speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to express and understanding general and technical texts. German - Beginners ryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profess Framework of Reference for Languages A1. German - Beginners	nding general and Z ty to describe exp Sional language)	d technical texts 2 veriences and 2 t corresponds to
Mapped to the level of during free time, and ta 2046080 Understanding standar events, briefly explain 2046076 Basic vocabulary of ev the Common European 2046077 Mapped to the level Co	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of German - Upper Intermediate Course depech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to describe experiences and technical texts. German - Beginners reading and understanding general and technical texts. German - Beginners reading and written form. Understanding and use of basic expressions of general scientific terminology (profess Framework of Reference for Languages A1. German - Beginners mon European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions and plane spoken form. Understanding and use of everyday life in a written and spoken form. Understanding and use of everyday life in a written and spoken form. Understanding and use of everyday life in a written and spoken form. Understanding and use of everyday life in a written and spoken form. Understanding and use of everyday life in a written and spoken form.	nding general and Z ty to describe exp Sional language)	d technical texts 2 veriences and 2 t corresponds to
Mapped to the level of during free time, and ta 2046080 Understanding standar events, briefly explain of 2046076 Basic vocabulary of ev the Common European 2046077 Mapped to the level Co general scientific termine	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of German - Upper Intermediate Course depech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to describe experiences and technical texts. German - Beginners Gryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profess Framework of Reference for Languages A1. German - Beginners mmon European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressional language).	nding general and Z ty to describe exp sional language) Z and use of basic	d technical texts 2 eriences and 2 t corresponds to 2 expressions of
Mapped to the level of during free time, and ta 2046080 Understanding standar events, briefly explain of 2046076 Basic vocabulary of ev the Common European 2046077 Mapped to the level Co general scientific termin 2046161	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of German - Upper Intermediate Course despect about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to describe experiences and technical texts. German - Beginners or Understanding general and technical texts. German - Beginners of Reference for Languages A1. German - Beginners of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding and understanding a basic expressional language). Presentations in English	nding general and Z ty to describe exp Sional language)	d technical texts 2 veriences and 2 t corresponds to
Mapped to the level of during free time, and ta 2046080 Understanding standar events, briefly explain of 2046076 Basic vocabulary of ev the Common European 2046077 Mapped to the level Co general scientific termin 2046161	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of German - Upper Intermediate Course depech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to describe experiences and technical texts. German - Beginners Gryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profess Framework of Reference for Languages A1. German - Beginners mmon European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressional language).	nding general and Z ty to describe exp sional language) Z and use of basic	d technical texts 2 2 2 1 2 1 2 1 2 1 2 2 2 2 2 2 2 2 2
Mapped to the level of during free time, and ta 2046080 Understanding standau events, briefly explain of 2046076 Basic vocabulary of ev the Common European 2046077 Mapped to the level Co general scientific termi 2046161 Preparing students to 2046166	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of Reference and events, explain one's opinions and plans. Reading and understanding speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability ne's opinions and plans. Reading and understanding general and technical texts. German - Beginners ryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profess Framework of Reference for Languages A1. German - Beginners mmon European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding rology (professional language). Presentations in English resent in English on technical topics, with a possible co-operation with specialized departments. Presentations in Czech	nding general and Z ty to describe exp sional language) Z and use of basic	d technical texts 2 eriences and 2 t corresponds to 2 expressions of
Mapped to the level of during free time, and ta 2046080 Understanding standau events, briefly explain of 2046076 Basic vocabulary of ev the Common Europeau 2046077 Mapped to the level Co general scientific termi 2046161 Preparing students to 2046166 Preparing students to	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of Reference and events, explain one's opinions and plans. Reading and understate German - Upper Intermediate Course despect about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to escribe experiences and events, explain one's opinions and plans. Reading and understanding general and technical texts. German - Beginners ryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profess) Framework of Reference for Languages A1. German - Beginners mmon European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding relevely use of professional language). Presentations in English resent in English on technical topics, with a possible co-operation with specialized departments. Presentations in English on technical topics, with a possible co-operation with specialized departments.	nding general and Z ty to describe exp sional language) and use of basic Z Z	d technical texts 2 2 eriences and 2 t corresponds to 2 expressions of 2 2 2 2
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2046164	Presentations in Russian	Z	2
Preparation for pres	enting technical topics in Russian, possibly in cooperation with specialized departments.		
2046163	Presentations in French language	Z	2
Preparation for pres	enting technical topics in French, possibly in cooperation with specialized departments.		
2046165	Presentations in Spanish	Z	2
Preparation for pres	enting technical topics in Spanish, possibly in cooperation with specialized departments.	I	1
2046137	Russian - Lower Intermediate Course	Z	2
Understanding clear	ly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. V	، Writing in a simple	, way about familia
topics. Reading and	comprehension of simple texts. Improvement of professional language.		
2046138	Russian - Lower Intermediate Course	Z	2
Mapped to the level	of common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a s	student meets at so	chool or in his/he
free time and speak	ing about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of pro	ofessional language	.
2046141	Russian - Advanced	Z	2
Comprehension of s	poken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, particip	ation in discussions	s. Expressing
opinions. Written ski	lls. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and	technical articles.	
2046142	Russian - Advanced	Z	2
Mapped to the level	of common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian or	n topics familiar to t	he student.
Communication with	native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading	and understanding	texts concerning
currant issues and p	opular scientific and technical articles.		
2046140	Russian - Upper Intermediate	Z	2
Mapped to the level	of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a studen	it meets at work, at	school, during
	g about these topics. Ability to describe experience: A2 - B1 Understanding standard speech about familiar matters that a studen		
free time, and talking 2046139	g about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and unders	standing general an	d technical texts
free time, and talking 2046139 Understanding stand	g about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and unders Russian - Upper Intermediate	standing general an	d technical texts
free time, and talking 2046139 Understanding stand	g about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and unders Russian - Upper Intermediate dard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. At	standing general an	d technical texts
free time, and talking 2046139 Understanding stand events, briefly expla 2046136	g about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and unders Russian - Upper Intermediate dard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. At in one's opinions and plans. Reading and understanding general and technical texts.	standing general an Z bility to describe ex	d technical texts
free time, and talking 2046139 Understanding stand events, briefly expla 2046136 Mapped to the level	g about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and unders Russian - Upper Intermediate dard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. At in one's opinions and plans. Reading and understanding general and technical texts. Russian - Beginners	standing general an Z bility to describe ex	d technical texts
free time, and talking 2046139 Understanding stand events, briefly expla 2046136 Mapped to the level	g about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and unders Russian - Upper Intermediate dard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. At in one's opinions and plans. Reading and understanding general and technical texts. Russian - Beginners of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understar	standing general an Z bility to describe ex	d technical texts
free time, and talking 2046139 Understanding stand events, briefly expla 2046136 Mapped to the level of general scientific 2046135	g about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and unders Russian - Upper Intermediate dard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. At in one's opinions and plans. Reading and understanding general and technical texts. Russian - Beginners of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understar terminology (professional language)	standing general ar Z bility to describe ex Z nding and use of ba	d technical texts 2 periences and 2 sic expressions
free time, and talkin 2046139 Understanding stan events, briefly expla 2046136 Mapped to the level of general scientific 2046135 Basic vocabulary of	g about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and unders Russian - Upper Intermediate dard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. At in one's opinions and plans. Reading and understanding general and technical texts. Russian - Beginners of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understant terminology (professional language) Russian - Beginners everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profe	standing general ar Z bility to describe ex Z nding and use of ba	d technical texts 2 periences and 2 sic expressions
free time, and talkin 2046139 Understanding standevents, briefly expla 2046136 Mapped to the level of general scientific 2046135 Basic vocabulary of 2046099	g about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and unders Russian - Upper Intermediate dard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. At in one's opinions and plans. Reading and understanding general and technical texts. Russian - Beginners of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understant terminology (professional language) Russian - Beginners everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professional Spanish - Lower Intermediate	standing general ar Z bility to describe ex Z nding and use of ba Z iessional language) Z	d technical texts 2 periences and 2 sic expressions 2 2 2 2
free time, and talking 2046139 Understanding stand events, briefly expla 2046136 Mapped to the level of general scientific 2046135 Basic vocabulary of 2046099 Mapped to the level	g about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and unders Russian - Upper Intermediate dard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. At in one's opinions and plans. Reading and understanding general and technical texts. Russian - Beginners of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understant terminology (professional language) Russian - Beginners everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profe	standing general ar Z bility to describe ex Z nding and use of ba Z sessional language) Z student meets at sc	d technical texts 2 periences and 2 sic expressions 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
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free time, and talkin 2046139 Understanding standevents, briefly expla 2046136 Mapped to the level of general scientific 2046135 Basic vocabulary of 2046099 Mapped to the level free time and speak 2046098 Understanding clear topics. Reading and 2046096 Aim:Understanding familiar topics. Read 2046097	g about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. At in one's opinions and plans. Reading and understanding general and technical texts. Russian - Beginners of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professional language) Russian - Beginners everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profe Spanish - Lower Intermediate of Common European Framework of Reference A2 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 comprehension of simple texts. Improvement of professional language. Spanish - Beginners (Spanish - Beginners (Spanish - Beginners) (Spanish - Boginners) (Sp	standing general ar Z bility to describe ex Z ding and use of ba Z essional language Z student meets at sc ofessional language Z Writing in a simple v D Mriting in a simple v Z	d technical texts 2 periences and 2 sic expressions 2 2 hool or in his/hei 2 way about familia 2 mple way about 2

List of courses of this pass:

Code	Name of the course	Completion	Credits
2011009	Mathematics III	Z,ZK	5
	An introductory course in ordinary differential equation and infinite series.		1
2011021	Constructive Geometry	Z,ZK	6
	The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relation	ons.	
2011056	Mathematics I	Z,ZK	8
In the course, great	er emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connectior	is between concep	ts. 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: e	igennumbers 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. Different	ial operators div (d	ivergence)
and curl (rotation). F	Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral,	Fubini theorem. Tra	Insformation
e 1	r, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green		
field, independend	e of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector	or field through a s	urface. The
	Gauss-Ostrogradskij theorem.		
2012037	Computer Graphics	KZ	3
2016007	Mathematics I Seminar	Z	2
201A021	Constructive Geometry A	ZK	3
	The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relation	ons.	

201A056	Mathematics I.A	ZK	4
	Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable		-
201A062	Mathematics II.A	ZK	4
	set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Different Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral.		
of integrals to pola	r, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green	n's theorem. A pote	ential vector
field, independent	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	r field through a su	urface. The
2021025	Gauss-Ostrogradskij theorem. Physics II.	Z.ZK	4
	ectromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of elec	, ,	-
	natter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and		
	ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 expe		the lectures.
2021041 Kinematics and dvi	Physics I. namics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic pro	Z,ZK	/ Oscillations
-	echanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co	-	
insulators. Magnet	ic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indire	ct measurements,	regression,
0000040	measurements of 11 various experiments related to the lectures.	-7	0
2026016	Physics - Seminar The subject is mainly meant for high-school students for repetition of high-school physics.	Z	2
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	perties of bodies.	-
	echanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co		
insulators. Magnet	ic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indire measurements of 11 various experiments related to the lectures.	ct measurements,	regression,
2041061	English-Bachelor Exam	Z.ZK	2
	mon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficul	, ,	1
	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.		
2041062	German - Bachelor Exam / FME	Z,ZK	2
Mapped to the Corr	nmon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficule to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	les, to take part in o	discussions,
2041063	French - Bachelor Exam /FME	Z,ZK	2
Mapped to the Corr	imon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficul	ies, to take part in o	discussions,
0044004	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	7 71/	
2041064 Mapped to the Corr	Spanish - Bachelor Exam / FME mon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficul	Z,ZK	
mapped to the Con	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.		13003310113,
2041065	Russian - Bachelor Exam / FME	Z,ZK	2
Mapped to the Corr	mon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficul	ies, to take part in o	discussions,
2046068	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. English - Beginners	7	2
	abulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (r	—	1
2046069	English - Beginners	Z	2
Mapped to the Con	nmon European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding	g and use of basic	expressions
2046070	of general scientific terminology (professional language). English - Lower Intermediate	7	2
	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	_	
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.	.	-
2046071	English - Lower Intermediate	Z	2
	mmon European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which a stute time and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improveme		
2046072	English - Upper Intermediate	Z	2
	d language skills taking into consideration professional English and common professional terminology. Comprehension of standard En		1
	about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2		
2046073	English - Upper Intermediate	Z	2
	ommon European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional Engli rehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermedi		
termineregy: eemp	knowledge.		ig grannar
2046074	English - Advanced	Z	2
	nension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Written		
level. Addity to wri	te a summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's field Grammar structures on advanced level. B1 - B2.	of studies without	difficulties.
2046075	English - Advanced	Z	2
Mapped to the Co	ommon European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in En		difficulties
and active particip	bation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay, reading and comprehenession in a discussion. Written and oral skills on advanced level	nsion of popular-sc	entific and
2046076	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level. German - Beginners	Z	2
	f everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professior	—	
	the Common European Framework of Reference for Languages A1.		
2046077			
Mannad to the !	German - Beginners	Z d uso of basic ovo	2
Mapped to the lev	German - Beginners el Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding an general scientific terminology (professional language).		1

2046078			
Aim I Inderstanding	German - Lower Intermediate Course	Z	2
	g clearly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking about t	them. Writing in	a simple wa
	about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		1
2046079	German - Lower Intermediate Course	Z	2
lapped to the level	of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a s	student meets e	ither at scho
or in his/her free	time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement	t of professional	l language.
2046080	German - Upper Intermediate Course	Z	2
Understanding sta	andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	to describe expe	eriences and
Ū	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.		
2046081	German - Upper Intermediate Course	Z	2
1			1
	el of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar topics, that a students come		
-	d talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understandin		1
2046082	German - Advanced Course	Z	2
Comprehension of	f spoken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participation	in discussions.	Expressing
opinions. V	Vritten skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a	nd technical art	icles.
2046083	German - Advanced Course	Z	2
apped to the level	l of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in Ge	rman without gr	eat difficulti
nd active participa	tion in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehen	sion of popular	-scientific ar
	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.		
2046084	French - Beginners	7	2
1	5	_	
iderstanding 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	about lamin
	topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046085	French - Beginners' Course	Z	2
lapped to the leve	el of Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which a s	student meets a	t school or i
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	of professional I	anguage.
2046086	French - Lower Intermediate Course	Z	2
	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	
	topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046097		Z	2
2046087	French - Lower Intermediate Course	_	1
	el of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a s		
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 I	
2046088	French - Upper Intermediate	Z	2
Jnderstanding sta	andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability t	to describe expe	eriences and
	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.		
2046089	French - Upper Intermediate	Z	2
	el of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students come	_	
	d talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understandin		
	Franch Advanced		
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, participation	Z in discussions.	2 Expressing
Comprehension opinions. V	of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participation vithen skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a	Z in discussions. nd technical art	2 Expressing icles.
Comprehension opinions. V 2046091	of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participation Vritten skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a French - Advanced	Z in discussions. nd technical arti Z	2 Expressing icles. 2
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2046126	Czech Lower Intermediate	Z	2
im: Understanding	clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	writing in a simple	e way abo
2046127	Czech - Upper Intermediate	Z	2
Jnderstanding stan	dard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	to describe exper	iences an
	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.		
2046128	Czech - Upper Intermediate	Z	2
apped to the Com	non European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional Cz	ech and common	professio
terminology. Comp	rehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on interm	nediate level. Broad	dening the
	knowledge technical language.		
2046135	Russian - Beginners	Z	2
Basic vocab	ulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p	professional langua	age)
2046136	Russian - Beginners	7	2
1	of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understanding		. –
	of general scientific terminology (professional language)		0,0100010
2046137		7	2
	Russian - Lower Intermediate Course	-	
iderstanding clean	/ what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	j in a simple way a	ibout iami
0040400	topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046138	Russian - Lower Intermediate Course	Z	2
	f Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a studer		
	speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of p	-	-
2046139	Russian - Upper Intermediate	Z	2
Inderstanding stan	dard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	to describe exper	iences ar
	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.		-
2046140	Russian - Upper Intermediate	Z	2
lapped to the level	of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student me	ets at work, at sch	nool, durir
e time, and talking	about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understandii	ng general and teo	chnical te
2046141	Russian - Advanced	Z	2
Comprehension of	spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participatio	n in discussions. E	xpressin
opinions. Wi	itten skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a	and technical artic	les.
2046142	Russian - Advanced	7	2
	el of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to	poics familiar to the	
	native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and u	-	
	currant issues and popular scientific and technical articles.	inderetaining terra	
2046155	English Conversation	Z	2
2040155	Improving communicative skills in speaking on general topics and general technical topics.	L 7	2
2040450		7	
2046156	English Conversation	Z	2
0040404	Improving communicative skills in speaking on general topics and general technical topics.		
2046161	Presentations in English	Z	2
	Preparing students to present in English on technical topics, with a possible co-operation with specialized departments.		-
2046162	Presentations in German	Z	2
	Preparation for presenting technical topics in German, possibly in cooperation with specialized departments.		
2046163	Presentations in French language	Z	2
	Preparation for presenting technical topics in French, possibly in cooperation with specialized departments.		•
2046164	Presentations in Russian	Z	2
	Preparation for presenting technical topics in Russian, possibly in cooperation with specialized departments.	-	
2046165	Presentations in Spanish	Z	2
2040105	Preparation for presenting technical topics in Spanish, possibly in cooperation with specialized departments.	Z	2
0040400		-	0
2046166	Presentations in Czech	Z	2
	Preparing students to give presentations in English on technical topics, with a possible co-operation with specialized department		1
2131002	Engineering Design II	Z,ZK	4
	6 (Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface	, 0	
dimensional loops	, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice the	ir knowledge from	lectures.
2141204	Introduction to Electrical Engineering for Technology	Z,ZK	4
	al circuits, analysis of electrical circuits as DC and AC. El. Power and Energy. Principle and typical parameters diodes, transistors, t		n amplifie
Analogue and di	gital circuits. AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Transformer. Induction machines	s. Synchronous ma	achines.
	DC-machines		
2144062	Technical Indonesian - Course II.	Z,ZK	3
I	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		· -
		Z	0
21/6064	Technical Indonesian - Course I.	2	2
2146061	Second part of Indonesian Language for Student Exchange Program to Indonesia		-
2182019	Chemistry	KZ	3
2182019 General chemistry	Chemistry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties	s of matter, thermo	odynamic
2182019 General chemistry	Chemistry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochemistry	s of matter, thermo	odynamic
2182019 General chemistry	Chemistry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties	s of matter, thermo	odynamic
2182019 General chemistry	Chemistry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochemistry	s of matter, thermo	odynamic

P em toposite pathometeno genometen and transmission meterial a splich objectivity of meterial and splice and both and stancistics. If dealer with the current development rends in mean meterials at well. 2321501 The current characterizes individual groups of new construction materials. In addition to the development and physical nature of these materials. The most commonly used byse of eacentry developed materials. The transmission methods of their designations are advected by the comparison of the common transmission. The common characterizes individual groups of new construction materials in addition to the development and physical nature of these materials. The transmission methods of their designations are developed materials. The transmission methods of their designations are developed materials. The data characterizes and mechanics properties are listed. Their activity of methods in advectory and test systems, test standards, the data characterizes in the standard in their advectory individual groups and test methods. The data characterizes in the standard in the standard in their advectory individual groups are degree in the standard in their advectory individual groups are degree in thein advectory individual groups are degree in thein advectory indi	2321067	Technical Application of Materials	Z,ZK	5
222161 ZZK 4 In ecource characteristics individual groups of new construction materials, in addition to the development and physical neuror of these materials, the individual groups of new construction materials, in addition to the development and physical neuror of these materials, the individual groups of their designations are laided. Their technological possibilities, design applicability and methods of their designations are laided. Their technological possibilities, design applicability and methods of their designations are laided. Their technological possibilities, design applicability and methods of their designations are designed in their designations. Their designations are constructive and designations are constructive and physical. Individual activations and constructive and progenites. Writication of progenites in certains and centerics, generative and technological progenites. Developed progenintes. Developed progenites. Developed progenites. Developed prog	P edm t popisuje a	plikovatelnost jednotlivých skupin inženýrských materiál a jejich odpovídající vlastnosti. Rovn ž se v nuje aktuálním vývojovým trend	I m t chto skupin.	The subject
The course chandratives individual groups of new construction materials, in addition to the divergence and additional properties are stated. Their struction of properties and the state chandrate structure is structure in structure in structure is structure in structure in structure is structure in struc	descri	bes applicability of specific engineering material types and their characteristics. It deals with the current development trends in these	materials as well.	
recardly developed materials, their basic characteristics and mechanical properties are listed. Their technological possibilities, design applicability and methods of their designators are also presented. 3231203 3. Technical testing of materials 3. Technical testing 3. T	2321501		Z,ZK	4
are also presented 2221503 Torm and definition of properties in a certified quality management system. Accredites tableoratory and test systems, test standard. Basic mechanical standards. Test of mediate and the inclusion and test inclusion. Testing of materials in the tables are inclusion. Testing of materials in the tables are inclusion. Testing of materials in the inclusion are inclusion. Testing of materials in the tables are inclusion. Testing of materials. Test of materials are inclusion. Testing of materials. Test of materials are inclusion. Testing of materials. Testing of materials. Science and their descript. Characterial materials. Internal attructure of metals. cyclus and testing. Testing of materials. Science and their descript. Characterials. Science and their descript. Characterials. Test of materials. Testing of materials. Science and their descript. Characterials. Science and testing of the characteristic and testing. Testing of materials. Testing of materians. Testing of materials. Testing of material	The course chara	cterizes individual groups of new construction materials. In addition to the development and physical nature of these materials, the m	ost commonly use	d types of
222103 Technical testing of materials Z.K 5 Form ad definition of properties. Level, encore the strand testing and the strand testing the characteristics of materials and the strand testing. The strand test strand test strand test strand testing the characteristics of materials and the strangene strand testing. The strand test strand testing the characteristics of materials explorence, composites and corranics. Testing of materials on the limited attas is the base methods in accordance with the relevent strand-testing. The strand testing the characteristics of materials explorence, composites and corranics, repeate and phase transformation, recry-attalization and fracture of materials explorence of materials and their testing, fundamentals of thermodynamics, phases and phase transformation, recry-attalization and fracture of materials explorence of materials and their testing, fundamentals of thermodynamics, phases and phase transformation, recry-attalization and fracture of materials on experiment at examines. The strand testing testing of materials. The strand testing the strand testing testing the strand testing testing and evaluate hitter to testing the testing. Testing and evaluate hitter to testing the strand testing testing and evaluate hitter to testing testing testing and evaluate testing testing testing and testing testing and testing testing testing testing testing and testing testing testing testing testing and testing testing testing and testing tes	recently develope	d materials, their basic characteristics and mechanical properties are listed. Their technological possibilities, design applicability and I	methods of their de	signations
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