Study plan

Name of study plan: 16 80 85 00 DVES TVA 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: 115
Elective courses credits: 66
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: 106

The role of the block: P

Code of the group: 12BVP4P

Name of the group: 09 2012 BVES 4.sem prezenční 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 prezenční povinné

Onaraotonionio	110 0001000 01 1110 group 01 01001 pro-	onom porm							
2342005	KZ	2							
Basic quality control terms, where is quality created, who is responsible for a quality. Basic statistical terms and distributions. Statistical methods: statistical process control, statistic									
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	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	cogramming of manufacture. 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	Z,ZK	4	2P+0C+2L	*	Р
2383001	Fundamentals of Law	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

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

Code of the group: 12BV*5P-TVA

Name of the group: 14 2012 BVES 5.sem zam TVA povinné

Requirement credits in the group: In this group you have to gain 17 credits

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

Credits in the group: 17 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2332038	Surface Treatment Technology	KZ	4	1P+2C	*	Р
2331505	Welding Technology	Z,ZK	4	2P+1C	*	Р
2322041	Heat treatment Jana Sobotová	KZ	4	2P+1C	*	Р

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

2332038	Surface Treatment Technology	KZ	4
TPU The course is an in	troduction to the topic of finishes (meaning and objectives of the field). They are introduced to the basics of corrosion distrib	ution and its speci	ies. TPU focuses
on corrosion protection	in engineering and other industries. Are reconstructed surface preparation processes (mechanical, chemical). Among the discu	ssed technologies	s finishes include
coating technologies (su	ich as electroplating, zinc plating) technology conversion layers, further application of organic coatings. An important issue is als	o ecological aspec	ts, Technological
design and testing in th	e field of surface treatment.		

2331505	Welding Technology	Z,ZK	4
2322041	Heat treatment	KZ	4
Theoretical fundamenta	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 tec	Automation of basic technological processes - casting, welding, forming and finishing. Facilities and equipment required to automate offices. Mechanization and automation in iron a								
steel foundries. Automa	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: 12BVP6P-TVA

Name of the group: 16 2012 BVES 6.sem zam TVA prez 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
2333993	Bachelor Thesis	Z	5	0P+6C	*	Р
2332056	Preparations and Tools	KZ	3	0P+3C	*	Р
2331065	Design Consideration	Z,ZK	5	3P+1C	*	Р

2331506 Casting and Forming Technology	Z,ZK	5	3P+2C	*	Р
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Characteristics of the courses of this group of Study Plan: Code=12BVP6P-TVA Name=16 2012 BVES 6.sem zam TVA prez povinné

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2333993	Bachelor Thesis	Z	5
2332056	Preparations and Tools	KZ	3
l n			

Principles of selection of the manufacturing method for semi-finished products. Production planning and production processes in the foundry. Production processes for forgings.

Accuracy, stock material, utilized equipment. Production processes for stampings. Manufacturing of stampings, presses and equipment. Production processes for weldments. Operational sequence, filler materials, equipment. Plastic mouldings. Individual projects for production of a casting, forging or a stamping.

2331065 Design Consideration

Z,ZK 5

Relations between design, production technique and economic aspects. Design considerations in casting, forming, welding, machining and assembly techniques. Basis for material and production technology selection. Component detailing for manufacture. CNC basis and using CNC.

2331506 Casting and Forming Technology

Z.ZK

5

Principles of selection of the manufacturing method for semi-finished products. Production planning and production processes in the foundry. Production processes for forgings, extrusion. Accuracy, stock material, utilized equipment. Production processes for stampings. Manufacturing of stampings, presses and equipment. Plastic mouldings. Individual projects for production of a casting, forging or a stamping.

Code of the group: 12DVP1P-KMEN

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

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

Credits in the group: 0

Note on the group:

12B**1P-KMEN#

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2182019	Chemistry Radek Šulc, Martin Dostál, Vojtěch Bělohlav, Jan Skočilas, Adam Krupica, Filip Randák Radek Šulc Radek Šulc (Gar.)	KZ	3	2P+1C	1	Р
2011021	Constructive Geometry	Z,ZK	6	3P+2C	*	Р
2011056	Mathematics I Radka Keslerová, Marta Hlavová, Jiří Holman, Gejza Dohnal, Marta Čertíková, Vladimír Hric, Nikola Pajerová, Petr Louda, Lukáš Hájek, Radka Keslerová Gejza Dohnal (Gar.)	Z,ZK	8	4P+4C	*	Р
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 prezenční

2182019 | Chemistry

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

Methors to all Methors to all

2011056 | Mathematics I | Z,ZK | 8 In the course, greater emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connections between concepts. Students

will also get to know the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: eigennumbers and eigenvectors of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.

2372041 Computer Support for Study

ΚZ

3

The course introduces students into creating technical and professional documents on computers or Web and into realizing technical computations with the use of computers. Students gain practical skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical-based WWW page.

Code of the group: 12DVP2P-KMEN

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

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 #

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	KZ	3	2P+1L	2	Р

2012037	Computer Graphics	KZ	3	1P+1C	*	Р
2333017	Surface Treatment	Z	3	1P+1C	*	Р
2131002	Engineering Design II	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 prezenční

2021041 | Physics I.

Kinematics and dynamics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic properties of bodies. Oscillations, waves. Fluid mechanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Conductors, semiconductors, insulators. Magnetic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect measurements, regression,

measurements of 11 various experiments related to the lectures.

2011062 | Matematika II. | Z,ZK | 8

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

2322029 Materials Science I. KZ 3
History and present state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, deformation, recrystallization and

fracture of materials, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, iron-carbon phase diagram.

 2012037
 Computer Graphics
 KZ
 3

 2333017
 Surface Treatment
 Z
 3

Introduction to the surface treatments - branch signification and objects. Principles of corrosion, types and corrosion distribution. Anticorrosive prevention in manufacturing, method anticorrosive prevention. Corrosion testing. Surface pre-treatment. Converse coatings, enamels. Inorganic coatings, electroplating, hot-dip galvanizing. Organic coatings. Ecological aspects of surface treatments.

2131002 Engineering Design II

Z,ZK 4 surface texture, geometrical tolerance,

Principles of ISO GPS (Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface texture, geometrical tolerance, dimensional loops, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice their knowledge from lectures.

2333038 Fundamentals of Technology I.

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

Code of the group: 12DVP3P-KMEN

Name of the group: 00 2012 D kmenové 3. semestr redukované pro VES prezenční

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

Credits in the group: 0

Note on the group:

12BV*3P-KMEN-R #

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 Stanislav Kračmar	Z,ZK	5	2P+2C	*	Р
2321039	Materials Science II. Jiří Cejp, Jakub Horník, Jana Sobotová, Elena Čižmárová, Eliška Galčíková, Pavlína Hájková, Jakub Horváth, Stanislav Krum, Vladimír Mára, Jana Sobotová Jana Sobotová (Gar.)	Z,ZK	4	2P+2L	*	Р
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 prezenční

2021025	Physics II.	Z,ZK	4
Faraday's law of electron	nagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of	electromagnetic w	vaves. Interaction
of radiation with matter.	Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom a	nd periodic syster	m of elements.
Spectra x-rays laser I	Rand theory of solids, semiconductors, Nucleus, radioactivity, sources of nuclear energy Laboratories - measurements of 6 e	voeriments 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 metal	urgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal ar	nd thermo-mechai	nical processing,

technical 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 metals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of forming processes. Semi-products, heating-up. Cutting. Cold and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. 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 bakalářské zkoušky z jazyků 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 Dušana Jirovská Eliška Vítková Dušana Jirovská (Gar.)	Z,ZK	2	0P+2C	*	PV
2041062	German - Bachelor Exam / FME Jaroslava Kommová, Eliška Vítková, Petr Laurich Jaroslava Kommová Jaroslava Kommová (Gar.)	Z,ZK	2	0P+2C	*	PV
2041065	Russian - Bachelor Exam / FME Hana Volejníková, Dušana Jirovská Eliška Vítková Dušana Jirovská (Gar.)	Z,ZK	2	0P+2C	*	PV
2041064	Spanish - Bachelor Exam / FME Jaime Andrés Villagómez Eliška Vítková Jaime Andrés Villagómez (Gar.)	Z,ZK	2	0P+2C	*	PV

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

120			
2041061	English-Bachelor Exam	Z,ZK	2
Mapped to the Comm	non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater dif	ficulties, to take par	t in discussions
to write a summary,	a report and an essay, to read technical texts, to master grammar at advanced level.		
2041063	French - Bachelor Exam /FME	Z,ZK	2
Mapped to the Comm	non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater dif	ficulties, to take par	t in discussions.
to write a summary,	a report and an essay, to read technical texts, to master grammar at advanced level.		
2041062	German - Bachelor Exam / FME	Z,ZK	2
Mapped to the Comm	non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater dif	ficulties, to take par	t in discussions
to write a summary,	a report and an essay, to read technical texts, to master grammar at advanced level.		
2041065	Russian - Bachelor Exam / FME	Z,ZK	2
Mapped to the Comm	non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater dif	ficulties, to take par	t in discussions
to write a summary,	a report and an essay, to read technical texts, to master grammar at advanced level.		
2041064	Spanish - Bachelor Exam / FME	Z,ZK	2
Mapped to the Comm	non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater dif	ficulties, to take par	t in discussions
to write a summary,	a report and an essay, to read technical texts, to master grammar at advanced level.		

Code of the group: 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
Předmět popisuje aplik	ovatelnost jednotlivých skupin inženýrských materiálů a jejich odpovídající vlastnosti. Rovněž se věnuje aktuálním vývojovým t	rendům těchto sk	upin. 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 1 povvol 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:

14010 011 1110	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	KZ	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 1	povvoi oboro	ove projekty				
2322091	Project	KZ	2				
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 literature							
with particular emphasi	s on experimental technologies which can be applied in their bachelor theses. They can also mention a planned experiment of	or evaluate hithert	o obtained				
knowledge or results.							
2332091	Project	KZ	2				
2342091	Project	KZ	2				
Work on specialized tas	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:

11010 011 1110	O 1					
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	ZK	3	0P+0C	*	V
201A056	Mathematics I.A Radka Keslerová	ZK	4	0P+0C	*	٧
201A062	Mathematics II.A	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.	ZK	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	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 va	rious experiments related to the lectures.					
		,				

•						
201A021	Constructive Geometry A	ZK	3			
The subject is focused of						
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			
	The second second	' / !!				

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 doporučené semináře

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

Credits in the group: 0

Note on the group:

Pokud si chce student své dosud získané znalosti (například z matematiky, fyziky, cizích jazyků atd.) doplnit, může si zapsat některý z volitelných předmětů, které příslušné ústavy pro 1. semestr (zimní) vvojsují. Doporučujeme zejména předměty uvedené v této skupině

	(2) Typicaji. Boporadajomo Zojmona prodimoti	,		P		
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, Luděk Beneš, Hynek Řezníček, 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 doporučené semináře

2026016	Physics - Seminar	Z	2			
The subject is mainly m	The subject is mainly meant 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 doporučené základní jazykové kurzy a prezentace

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

Credits in the group: 0
Note on the group:

	Name of the course / Name of the group of courses					
Code	(in case of groups of courses the list of codes of their members)	Completion	Credits	Scope	Semester	Role
	Tutors, authors and guarantors (gar.)					
2046155	English Conversation Ilona Šimice, Michele Le Blanc Ilona Šimice Michele Le Blanc (Gar.)	Z	2	0P+2C	*	٧
2046156	English Conversation Michele Le Blanc	Z	2	0P+2C	L	٧
2046071	English - Lower Intermediate Veronika Kratochvílová	Z	2	0P+2C	L	٧
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 Ilona Šimice Ilona Šimice (Gar.)	Z	2	0P+2C	L	٧
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 Veronika Kratochvílová Ilona Šimice	Z	2	0P+2C	L	٧
2046126	Czech Lower Intermediate Jaroslava Kommová	Z	2	0P+2C	L	٧
2046125	Czech Lower Intermediate Jaroslava Kommová	Z	2	0P+2C	Z	٧
2046118	Czech -Advanced Jaroslava Kommová	Z	2	0P+2C	L	٧
2046117	Czech -Advanced Jaroslava Kommová	Z	2	0P+2C	Z	٧
2046127	Czech - Upper Intermediate Jaroslava Kommová	Z	2	0P+2C	Z	V
2046128	Czech - Upper Intermediate Jaroslava Kommová	Z	2	0P+2C	L	V
2046119	Czech Language for Beginners I. Jaroslava Kommová	Z	2	0P+2C	Z	٧
2046120	Czech Language for Beginners II. Jaroslava Kommová	Z	2	0P+2C	L	٧
2046086	French - Lower Intermediate Course Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	z	٧

2046087	French - Lower Intermediate Course Dušana Jirovská Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	L	V
2046091	French - Advanced Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	L	V
2046090	French - Advanced Michaela Schusová, Dušana Jirovská, Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046089	French - Upper Intermediate Dušana Jirovská Dušana Jirovsk á (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 Dušana Jirovská Michaela Schusová Dušana Jirovská (Gar.)	Z	2	0P+2C	L	V
2146060	Indonesian Language Course for Exchange	Z	2	0P+2C	*	V
2146061	Technical Indonesian - Course I.	Z	2	0P+2C	Z	V
2144062	Technical Indonesian - Course II.	Z,ZK	3	1P+2C	L	V
2046078	German - Lower Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046079	German - Lower Intermediate Course Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046083	German - Advanced Course Jaroslava Kommová, Eliška Vítková, Petr Laurich Jaroslava Kommová Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046082	German - Advanced Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046081	German - Upper Intermediate Course Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046080	German - Upper Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046076	German - Beginners Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Petr Laurich (Gar.)	Z	2	0P+2C	Z	V
2046077	German - Beginners Jaroslava Kommová, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046161	Presentations in English Michaela Schusová	Z	2	0P+2C	*	V
2046166	Presentations in Czech Jaroslava Kommová	Z	2	0P+2C	*	V
2046162	Presentations in German Jaroslava Kommová, Eliška Vítková, Petr Laurich Jaroslava Kommová Jaroslava Kommová (Gar.)	Z	2	0P+2C	*	V
2046164	Presentations in Russian Dušana Jirovská	Z	2	0P+2C	*	V
2046163	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 Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046141	Russian - Advanced Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046142	Russian - Advanced Hana Volejníková, Dušana Jirovská	Z	2	0P+2C	L	V
2046140	Russian - Upper Intermediate Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046139	Russian - Upper Intermediate Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046136	Russian - Beginners Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046135	Russian - Beginners Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V

2046099	Spanish - Lower Intermediate Jaime Andrés Villagómez Eliška Vítková Jaime Andrés Villagómez (Gar.)	Z	2	0P+2C	L	V
2046098	Spanish - Lower Intermediate Michaela Schusová, Eliška Vítková, Jaime Andrés Villagómez Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046096	Spanish - Beginners Michaela Schusová, Eliška Vítková, Jaime Andrés Villagómez Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046097	Spanish - Beginners Jaime Andrés Villagómez Jaime Andrés Villagómez Jaime Andrés Villagómez (Gar.)	Z	2	0P+2C	L	V

2046155	Ce	Z	
Improving communica	English Conversation tive skills in speaking on general topics and general technical topics.	2	2
2046156	English Conversation	Z	2
	tive skills in speaking on general topics and general technical topics.		۷
2046071	English - Lower Intermediate	7	2
	n European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations whic		
	and speaking about them. Writing in a simple way about familiar topics, reading and comprehension of simple texts. Improver		
2046070	English - Lower Intermediate	7	2
	early what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about th	. – .	
_	g and comprehension of simple texts. Improvement of professional language. A1 - A2.		.p.o .ray asour
2046074	English - Advanced	7	2
	on of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Wr	itten and oral skills	_
•	summary, a report, an essay, reading and comprehension of popular-scientific and scientific articles or texts from student's fi		
Grammar structures o	n advanced level. B1 - B2.		
2046075	English - Advanced	Z	2
	on European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in	English without gre	at difficulties
and active participation	n in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and compre	ehension of popular	r-scientific and
scientific articles or te	tts from student's field of studies without difficulties. Grammar structures on advanced level.		
2046072	English - Upper Intermediate	Z	2
he aim is to extend la	n guage skills taking into consideration professional English and common professional terminology. Comprehension of standar	rd English speech a	nd conversatio
about topics of everyo	ay life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1.		
2046073	English - Upper Intermediate	Z	2
	on European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional E	nglish and common	professional
	ension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on inter		
nowledge.			
2046068	English - Beginners	Z	2
	of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional langua	
2046069	English - Beginners	Z	2
	on European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understa	inding and use of ba	asic expression
of general scientific te	rminology (professional language).		
2046126	Czech Lower Intermediate	Z	2
	early what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about th	em. Writing in a sim	nple way about
amiliar topics. Readir	g and comprehension of simple texts. Improvement of professional language.		
2046125	Czech Lower Intermediate	Z	2
	" early what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about th	em. Writing in a sim	nple way about
amiliar topics. Readir	g and comprehension of simple texts. Improvement of professional language.		
2046118	Czech -Advanced	Z	2
	Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in	Czech without grea	t difficulties an
	a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehe	nsion of popular-sc	ientific and
active participation in	ts from student's field of studies without difficulties. Grammar structures on advanced level.		
	to nom stadent s neid of stadies without dimediaes. Crammar structures on advanced level.		
scientific articles or te		Z	2
scientific articles or te 2046117	Czech -Advanced ken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation i	1 1	
scientific articles or te 2046117 Comprehension of sp	Czech -Advanced	n discussions. Expr	
scientific articles or te 2046117 Comprehension of sp Written skills. Ability t	Czech -Advanced ken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation i write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical and technical scientific and technical scientifical scientific and technical s	n discussions. Expr	essing opinions
scientific articles or to 2046117 Comprehension of sp Written skills. Ability to 2046127	Czech -Advanced ken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation i write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical a Czech - Upper Intermediate	articles.	essing opinions
scientific articles or to 2046117 Comprehension of sp Written skills. Ability to 2046127 Understanding standa	Czech -Advanced ken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation i write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical and technical scientific and technical scientifical scientific and technical s	articles.	essing opinions
scientific articles or to 2046117 Comprehension of sp Written skills. Ability to 2046127 Understanding standa events, briefly explain	Czech -Advanced ken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation is write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical a Czech - Upper Intermediate red speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abitione's opinions and plans. Reading and understanding general and technical texts.	in discussions. Expri articles. Z illity to describe expri	essing opinions 2 eriences and
scientific articles or to 2046117 Comprehension of sp Written skills. Ability to 2046127 Understanding standa events, briefly explain 2046128	Czech -Advanced ken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation i write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical a Czech - Upper Intermediate rd speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abione's opinions and plans. Reading and understanding general and technical texts. Czech - Upper Intermediate	n discussions. Exprarticles. Z illity to describe expra	essing opinions 2 eriences and 2
scientific articles or to 2046117 Comprehension of sp Written skills. Ability to 2046127 Understanding standa events, briefly explain 2046128 Mapped to the Comm	Czech -Advanced ken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation is write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical a Czech - Upper Intermediate red speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abitione's opinions and plans. Reading and understanding general and technical texts.	n discussions. Exprarticles. Z illity to describe exprall Z Z Z Z A Z A Czech and comm	essing opinions 2 eriences and 2 son professiona
scientific articles or to 2046117 Comprehension of sp Written skills. Ability to 2046127 Understanding standa events, briefly explain 2046128 Mapped to the Comm	Czech -Advanced ken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation i write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical a Czech - Upper Intermediate rd speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abi one's opinions and plans. Reading and understanding general and technical texts. Czech - Upper Intermediate on European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professions ension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate	n discussions. Exprarticles. Z illity to describe exprall Z Z Z Z A Z A Czech and comm	essing opinions 2 eriences and 2 son professiona
ccientific articles or to 2046117 Comprehension of sp Written skills. Ability to 2046127 Understanding standar events, briefly explain 2046128 Mapped to the Commerminology. Comprehenced	Czech -Advanced ken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation i write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical and Czech - Upper Intermediate red speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abitione's opinions and plans. Reading and understanding general and technical texts. Czech - Upper Intermediate	n discussions. Exprarticles. Z illity to describe exprall Z Z Z Z A Z A Czech and comm	2 eriences and 2 non professional
scientific articles or to 2046117 Comprehension of sp Written skills. Ability to 2046127 Understanding standa events, briefly explain 2046128 Mapped to the Commerminology. Comprehenced by Constant of the Commerminology.	Czech -Advanced ken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation i write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical a Czech - Upper Intermediate rd speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abi one's opinions and plans. Reading and understanding general and technical texts. Czech - Upper Intermediate on European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professions ension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate	n discussions. Expresarticles. Z illity to describe experimental and commental and c	essing opinions 2 eriences and 2 son professiona
scientific articles or to 2046117 Comprehension of sp Written skills. Ability to 2046127 Understanding standa events, briefly explain 2046128 Mapped to the Commermiology. Comprehenced legental	Czech -Advanced ken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation is write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technical at careful concerning currant issues and popular scientific and technic	n discussions. Expresarticles. Z illity to describe experimental and commental and c	essing opinions 2 eriences and 2 non professional adening the 2
ccientific articles or to 2046117 Comprehension of sp Written skills. Ability to 2046127 Understanding standary events, briefly explain 2046128 Mapped to the Commerminology. Comprehensionly etchnical 12046119 Basic vocabulary of ec. 2046120	Czech -Advanced ken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation is write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues and popular scientific and technical and concerning currant issues a	n discussions. Expresarticles. Z illity to describe experiments of the comments of the comme	2 eriences and 2 eron professional adening the 2
cicentific articles or to 2046117 Comprehension of sp Written skills. Ability to 2046127 Understanding standary events, briefly explain 2046128 Mapped to the Commermiology. Comprehenced legental legent	Czech -Advanced ken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation is write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical and second se	n discussions. Expresarticles. Z illity to describe experiments of the comments of the comme	2 eriences and 2 eron professional adening the 2
cicentific articles or to 2046117 Comprehension of sp Written skills. Ability to 2046127 Understanding standary events, briefly explain 2046128 Mapped to the Commermiology. Comprehence where the com	Czech -Advanced ken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation is write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant issues and popular scientific and technical at the concerning currant i	n discussions. Exprearticles. Z illity to describe experimental and commermediate level. Broading and use of bases	2 eriences and 2 eron professional adening the 2 expression assisted as a series of the series of th
cientific articles or te 2046117 comprehension of sp Written skills. Ability to 2046127 Inderstanding standa vents, briefly explain 2046128 Mapped to the Commerminology. Comprehenwledge technical lo 2046119 desic vocabulary of e 2046120 Mapped to the Commercial for the Commercial scientific technical s	Czech -Advanced ken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation is write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical and second se	n discussions. Exprearticles. Z illity to describe experimental commermediate level. Broadlessional language) Z assional language) Z and inding and use of bar	2 eriences and 2 eron professions adening the 2 eron expression 2 eron expression 2

staped to the level of Common European Framework of Reterence A2 Jun. Understanding clearly what is spoken about everyday situations which a student meets at school of Common European Framework of reference B1 - 82 Comprohersion of spoken language as well as lactures in French on topics familiar to the student communication with native spokens; participation in discussions. Expressing opinions. Written stills. Ability to write an estay or a report. Reading and understanding tests con unrent sissue and opport an electrical expression of the student communication with native spokens; participation in discussions. Expressing opinions. Written stills. Ability to write an estay or a report. Reading and understanding tests con unrent sissue and opportant control and participation and participation of the student communication with native spokens, participation in discussions. Expressing opinions. Written stills. Communication with native spokens, participation in discussions. Expressing participation of the student Communication with native spokens, participation in discussions. Expressing participation of the student Communication with native spokens, participation in discussions. Expressing participation in discussions. Expressing participation in discussions. Expressing participation in discussions. Expressing participation of the student communication with native spokens, participation in discussions. Expressing participation of the student communication with native spokens, participation in discussions. Expressing participation of the student communication and participation and participa	2046087	French - Lower Intermediate Course	Z	2
2046091 French - Advanced support to the tend Common European Framework of reference: 81 - 82 Comprehension of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participation in discussions. Excreasing opinions. Written akills. Ability to write an essay or a report. Reading and understanding tests continued to the common and an accordance of the common and accordance of the common acc		I .	_	I
Alepand to to lavel of Common European Farrawork of references B1 - 82 Comprehension of spokes language as well as loctures in French not robots familiar to the subsetuling communication with make the peakers, participation in discussions. Expressing common without states and spoular screenites and technical articles. 2 Carde6999 French - Advanced 2 Carde6999 French - Vulper Intermediate 3 Carde6999 French - Vulper Intermediate 3 Carde6999 French - Vulper Intermediate 4 Carde6999 French - Vulper Intermediate 4 Carde6999 French - Vulper Intermediate 5 Carde699 French - Vulper Intermediate 5 Carde699 French - Vulper Intermediate 5 Carde699 Frenc	his/her free time and sr	beaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	of professional lar	nguage.
intermentation with malive speakers, participation in discussions. Expressing opinions. Written skills, Ability to write an essay or a report. Reading and understanding tests continued to the property of th	2046091	French - Advanced	Z	2
urrant sauss and popular scientific and schrinkal articles. 2 Suppose Ferrich - Advanced Z Suppose Suppos	* *		-	
Prench - Advanced Prench - Upper Intermediate Pren			nd understanding	texts concernin
comprehension of societa franguage as well as fectures in French on boptic familiar to the subunit. Communication with native speakers, participation in discussions. Expressioninos. Witten shills, Ability to witten essay or a sport. Reading and understanding tests concerning current issues and popular scientific and technical articles. 24 (2008)			7	
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ir in hisher free time and speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts. Improvement of professional language 2046083 German - Advanced Course (apped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in German without great diffund active participation in a discussion. Written and oral skills on advanced level. Ability to write a summany, a report, an essay. Reading and comprehension of popular-scientic cientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level. 2046082 German - Advanced Course (appendix of the student Communication with native speakers, participation in discussions. Express polinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical articles. Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar topics, that a students comes across at work, at schuring free time, and talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding general and technical texts. 2046076 German - Upper Interrmediate Course Z Z Z Z Z Z Z Z Z	2046079	German - Lower Intermediate Course	Z	2
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and active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehension of popular-scientic cientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level. 2 2 20 20 20 20 20 20 20 20 20 20 20 20 20 2	2046083	I and the state of	. –	2
Contentific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level. Z Z Z Z Z Z Z Z Z				•
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Comprehension of spoken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participation in discussions. Express pinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical articles. 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			7	
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Council Coun	• •			
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Avents, briefly explain one's opinions and plans. Reading and understanding general and technical texts. 2046076 German - Beginners 2 2 22 23 24 25 26 26 26 26 26 26 26 26 26		1	ity to describe exp	I
Presentations in English on technical topics, with a possible co-operation with specialized departments. Presentations in German Presentations in Russian Presentations in French, possibly in cooperation with specialized departments. Presenting technical topics in French, possibly in cooperation with specialized departments. Presentations in French, possibly in cooperation with specialized departments. Presentations in French, possibly in cooperation with specialized departments. Presentations in French, possibly in cooperation with specialized departments. Presentations in French, possibly in cooperation with specialized departments. Presentations in French, possibly in cooperation with specialized departments. Presentations in French, possibly in cooperation with specialized departments.	_			
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peneral scientific terminology (professional language). 2046161 Presentations in English Preparing students to present in English on technical topics, with a possible co-operation with specialized departments. 2046166 Presentations in Czech Preparing students to give presentations in English on technical topics, with a possible co-operation with specialized departments. 2046162 Presentations in German Preparation for presenting technical topics in German, possibly in cooperation with specialized departments. 2046164 Presentations in Russian Preparation for presenting technical topics in Russian, possibly in cooperation with specialized departments. 2046163 Presentations in French language Preparation for presenting technical topics in French, possibly in cooperation with specialized departments. 2046165 Presentations in Spanish Z 2 2	2046077	German - Beginners	Z	2
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Preparing students to present in English on technical topics, with a possible co-operation with specialized departments. 2046166 Presentations in Czech Z Z Preparing students to give presentations in English on technical topics, with a possible co-operation with specialized departments. 2046162 Presentations in German Z Z Preparation for presenting technical topics in German, possibly in cooperation with specialized departments. 2046164 Presentations in Russian Z Z Preparation for presenting technical topics in Russian, possibly in cooperation with specialized departments. 2046163 Presentations in French language Z Z Preparation for presenting technical topics in French, possibly in cooperation with specialized departments. 2046165 Presentations in Spanish Z Z Presentations in Spanish Z Presentations in Spanish Z Presentations	-			T
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Preparing students to give presentations in English on technical topics, with a possible co-operation with specialized departments. 2046162 Presentations in German Z Z Preparation for presenting technical topics in German, possibly in cooperation with specialized departments. 2046164 Presentations in Russian Z Z Preparation for presenting technical topics in Russian, possibly in cooperation with specialized departments. 2046163 Presentations in French language Z Z Preparation for presenting technical topics in French, possibly in cooperation with specialized departments. 2046165 Presentations in Spanish Z Z Preparation for presentations in Spanish Preparation for presentation for presentati				
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Preparation for presenting technical topics in French, possibly in cooperation with specialized departments. 2046165 Presentations in Spanish Z Z			7	2
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	2046137		7	2
Industrial - Lower Intermediate Course Jack Standard Research Res		I .	1	I
opics. Reading and comprehension of simple texts. Improvement of professional language.			g iir a siiripie w	as asout fairille
	2046138		Z	2
Apped to the level of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a student meets at school or in		I .	1	I
ree time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.				

2046141	Russian - Advanced	Z	2
Comprehension of spo	ı ken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participati	ion 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	echnical 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 on t	opics familiar to th	e student.
Communication with n	ative speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a	nd understanding	texts concerning
currant issues and pop	oular 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 student r	neets at work, at	school, during
free time, and talking a	bout these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understa	ınding general and	technical texts.
2046139	Russian - Upper Intermediate	Z	2
Understanding standa	d speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abili	ity to describe exp	eriences and
events, briefly explain	one's opinions and plans. Reading and understanding general and technical texts.		
2046136	Russian - Beginners	Z	2
Mapped to the level of	Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understandi	ing and use of bas	sic expressions
of general scientific ter	minology (professional language)		
2046135	Russian - Beginners	Z	2
Basic vocabulary of ev	eryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profes	sional language)	'
2046099	Spanish - Lower Intermediate	Z	2
Mapped to the level of	Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a stu	dent meets at sch	ool or in his/her
free time and speaking	about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of profe	ssional language.	
2046098	Spanish - Lower Intermediate	Z	2
Understanding clearly	what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wr	iting in a simple w	ay about familia
topics. Reading and co	imprehension of simple texts. Improvement of professional language.		
2046096	Spanish - Beginners	Z	2
Aim:Understanding cle	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	m. Writing in a sin	nple way about
familiar topics. Readin	g and comprehension of simple texts. Improvement of professional language.		
2046097	Spanish - Beginners	Z	2
Mapped to the Commo	on European Framework of Reference Level A1. Aim: Understanding clearly what is spoken about everyday situations which a	student meets at	school or in
his/her free time and s	peaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	of professional lar	guage.

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 relati	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 connectio	ns 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: of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.	eigennumbers and e	eigenvectors
2011062	Matematika II.	Z.ZK	8
	waternative 11. Set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differen	1 '	_
• .	cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Greet te of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vect Gauss-Ostrogradskij theorem.	•	
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 relati	ons.	1
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	1	ļ
201A062	Mathematics II.A	ZK	4
and curl (rotation). F	set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differen unction given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Gree	Fubini theorem. Tra	ansformatio
0 .	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 function and a vector function. Flow of a vector function and a vector function.	•	
2021025	Physics II.	Z,ZK	4
•	ctromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of eleatter. Photoelectric effect. Wave-particle matter of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and	ctromagnetic waves d periodic system of	f element

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

2021041	Physics I.	Z,ZK	7
-	namics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic pro	-	
	echanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co tic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indire		
ou.u.o.ougo.	measurements of 11 various experiments related to the lectures.	orouou. ooo,	
2026016	Physics - Seminar	Z	2
	The subject is mainly meant for high-school students for repetition of high-school physics.		
202A041	Physics I. namics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic pro	ZK	Oscillations
-	namics of a particle motion. Principle of conservation of energy. System of particles, centre of mass, Rigid body. Continuum, etastic pro- echanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co	-	
	tic 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.		1
2041061	English-Bachelor Exam	Z,ZK	2
Mapped to the Con	nmon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	ies, to take part in	discussions,
2041062	German - Bachelor Exam / FME	Z,ZK	2
	nmon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult		
	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.		1
2041063	French - Bachelor Exam /FME	Z,ZK	2
Mapped to the Con	nmon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	ies, to take part in	discussions,
2041064	Spanish - Bachelor Exam / FME	Z,ZK	2
Mapped to the Con	nmon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult		discussions,
	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.		1
2041065	Russian - Bachelor Exam / FME	Z,ZK	2
Mapped to the Con	nmon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	ies, to take part in	discussions,
2046068	English - Beginners	Z	2
	abulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (p	rofessional langua	1
2046069	English - Beginners	Z	2
Mapped to the Cor	mmon European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding	g and use of basic	expressions
2046070	of general scientific terminology (professional language).	Z	2
	English - Lower Intermediate ng clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	_	
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.	3	,
2046071	English - Lower Intermediate	Z	2
	mmon European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which a s		
2046072	time and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improveme English - Upper Intermediate	nt of professional	anguage.
	d language skills taking into consideration professional English and common professional terminology. Comprehension of standard En	glish speech and o	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 English appeals and consideration professional English appeals and consideration and c		
terminology. Comp	rehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermedi knowledge.	ate level. Broadeni	ing grammar
2046074	English - Advanced	Z	2
The aim: comprel	hension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Written	and oral skills on	advanced
level. Ability to wr	ite a summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's field	of studies without	difficulties.
2046075	Grammar structures on advanced level. B1 - B2.	Z	2
	English - Advanced ommon European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in En	_	
	pation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and compreher	-	
	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.	_	
2046076	German - Beginners	Z	2
Basic vocabulary o	of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profession the Common European Framework of Reference for Languages A1.	al language) it col	rresponds to
2046077	German - Beginners	Z	2
Mapped to the lev	rel Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding an	d use of basic exp	ressions of
	general scientific terminology (professional language).	_	
2046078	German - Lower Intermediate Course	thom Writing in a	2 aimple way
Aim: Understandir	ng clearly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking about about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	uiem. writing in a	simple way
2046079	German - Lower Intermediate Course	Z	2
	el of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a		
	e time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement		
2046080	German - Upper Intermediate Course	Z to deceribe event	2
Uniderstanding st	andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.	to describe experi	erices and
2046081	German - Upper Intermediate Course	Z	2
	vel of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students com		
during free time, ar	nd talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding	ng general and ted	chnical texts.

2046082	German - Advanced Course	Z	2				
	of spoken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participatio		l				
	Nritten skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a						
2046083 German - Advanced Course Z 2							
	I of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in G		l				
	·	•					
and active participation in a discussion. Written 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 of studies without difficulties. Grammar structures on advanced level.							
2046084	French - Beginners	7	2				
	·	_	l				
Understanding clea	urly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	j in a simple way at	oout iamiliar				
004000	topics. Reading and comprehension of simple texts. Improvement of professional language.						
2046085	French - Beginners' Course	Z	2				
	el of Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which a						
	e and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement						
2046086	French - Lower Intermediate Course	Z	2				
Understanding clea	ırly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writinç	in a simple way al و	bout familiar				
	topics. Reading and comprehension of simple texts. Improvement of professional language.						
2046087	French - Lower Intermediate Course	Z	2				
Mapped to the lev	el of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a	student meets at s	chool or in				
his/her free tim	e and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	of professional lan	nguage.				
2046088	French - Upper Intermediate	7	2				
	andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	to describe experi					
	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.						
2046089	French - Upper Intermediate	Z	2				
	el of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students com						
	et of Continuit European Framework of Reference.Az * Br Onderstanding Standard Speech about familiar topics, that a students continuity about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understandi						
_		Tig general and tec					
2046090	French - Advanced	l Z _ l	2				
	of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participation						
	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a						
2046091	French - Advanced	Z	2				
Mapped to the I	evel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on to	pics familiar to the	student.				
Communication wit	h native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and u	inderstanding texts	concerning				
	currant issues and popular scientific and technical articles.						
2046096	Spanish - Beginners	Z	2				
Aim:Understandin	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Writing in a simple	way about				
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.						
2046097	Spanish - Beginners	Z	2				
	ommon European Framework of Reference Level A1. Aim: Understanding clearly what is spoken about everyday situations which a s	student meets at so	l				
	e and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement						
2046098	Spanish - Lower Intermediate	7	2				
	rly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	_	-				
Oridorstanding old	topics. Reading and comprehension of simple texts. Improvement of professional language.	j iii a simple way at	oot lamila				
2046000		Z	2				
2046099	Spanish - Lower Intermediate		l				
	of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a studer						
	nd speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of	Tolessional langua					
2046117	Czech -Advanced	<u>Z</u>	2				
	spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in dis	-	ng opinions.				
Writte	en skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and t	echnical articles.					
2046118	Czech -Advanced	Z	2				
Mapped to the leve	l of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czec	ch without great dif	ficulties and				
active participati	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehens	ion of popular-scie	ntific and				
	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.						
2046119	Czech Language for Beginners I.	Z	2				
Basic voca	bulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p	rofessional langua	ge)				
2046120	Czech Language for Beginners II.	Z	2				
	nmon European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding	a and use of basic	l				
	of general scientific terminology (professional language).	,					
2046125	Czech 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.	_	l				
7 iiii. Onderstandin	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	writing in a simple	way about				
0046106		7	0				
2046126	Czech Lower Intermediate	Writing in a simple	2				
Aiiii. Uniderstandin	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	vviiung in a simple	way about				
0040407	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		_				
2046127	Czech - Upper Intermediate	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 experie	ences and				
	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.						
2046128	Czech - Upper Intermediate	Z	2				
Mapped to the Cor	nmon European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional Cz	ech and common p	orofessional				
terminology. Com	prehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on interm	nediate level. Broad	lening the				
	knowledge technical language.						
2046135	Russian - Beginners	Z	2				
Basic voca	bulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p	rofessional langua	ge)				

2046136	Russian - Beginners	Z	2					
Mapped to the lev	el of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understanding	and use of basic e	xpressions					
of general scientific terminology (professional language)								
2046137	Russian - Lower Intermediate Course arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing		2 Dout familiar					
Onderstanding clea	topics. Reading and comprehension of simple texts. Improvement of professional language.	g iii a siiripie way at	out iaiiiiiai					
2046138	Russian - Lower Intermediate Course	Z	2					
	el of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a studen	nt meets at school	_					
free time a	nd speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of	orofessional langua	ige.					
2046139	Russian - Upper Intermediate	Z	2					
Understanding st	andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	to describe experie	ences and					
	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.							
2046140	Russian - Upper Intermediate	Z	2					
1	rel of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student me ng about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understandi		- 1					
2046141	Russian - Advanced	7	2					
	frussian - Advanced of spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participatio	n in discussions. E						
1	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific							
2046142	Russian - Advanced	Z	2					
Mapped to the I	evel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to	ppics familiar to the	student.					
Communication wit	th native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and u	inderstanding texts	concerning					
	currant issues and popular scientific and technical articles.							
2046155	English Conversation	Z	2					
	Improving communicative skills in speaking on general topics and general technical topics.		_					
2046156	English Conversation	Z	2					
00.101.01	Improving communicative skills in speaking on general topics and general technical topics.							
2046161	Presentations in English	Z	2					
0040400	Preparing students to present in English on technical topics, with a possible co-operation with specialized departments.	7						
2046162	Presentations in German Preparation for presenting technical topics in German, possibly in cooperation with specialized departments.	Z	2					
2046163	Presentations in French language	Z	2					
2040103	Preparation for presenting technical topics in French, possibly in cooperation with specialized departments.	2	2					
2046164	Presentations in Russian	Z	2					
2010101	Preparation for presenting technical topics in Russian, possibly in cooperation with specialized departments.	- 1	-					
2046165	Presentations in Spanish	Z	2					
	Preparation for presenting technical topics in Spanish, possibly in cooperation with specialized departments.	'						
2046166	Presentations in Czech	Z	2					
	Preparing students to give presentations in English on technical topics, with a possible co-operation with specialized departm	ents.						
2131002	Engineering Design II	Z,ZK	4					
	PS (Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface	-						
	ps, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice the							
2141204	Introduction to Electrical Engineering for Technology rical circuits, analysis of electrical circuits as DC and AC. El. Power and Energy. Principle and typical parameters diodes, transistors, t	Z,ZK	4					
	digital circuits. AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Transformer. Induction machines							
7 ii lalogao ai la	DC-machines	5. Cynom 6.1046 1114						
2144062	Technical Indonesian - Course II.	Z,ZK	3					
	Basic of Indonesian Language for Student Exchange Program to Indonesia	_,,	_					
2146060	Indonesian Language Course for Exchange	Z	2					
	Basic of Indonesian Language for Student Exchange Program to Indonesia							
2146061	Technical Indonesian - Course I.	Z	2					
	Second part of Indonesian Language for Student Exchange Program to Indonesia							
2182019	Chemistry	KZ	3					
	ry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties							
priase equilibrium	n, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and bioche oriented upon the material properties measurement.	mistry. Laboratory (oractice is					
2321039	Materials Science II.	Z,ZK	4					
	netallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and the							
	technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of mater		p					
2321067	Technical Application of Materials	Z,ZK	5					
Předmět popisuje a	aplikovatelnost jednotlivých skupin inženýrských materiálů a jejich odpovídající vlastnosti. Rovněž se věnuje aktuálním vývojovým tren	dům těchto skupin.	The subject					
	bes applicability of specific engineering material types and their characteristics. It deals with the current development trends in these							
2322029	Materials Science I.	KZ	3					
	ent state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, defor	-						
fracture of materials, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, iron-carbon phase diagram.								
2322041	Heat treatment Heat treatment of ferrous and non-ferrous metals, evaluation for	KZ	4 topic					
	undamentals of heat treatment, basic processes of heat and chemical-heat treatment of ferrous and non-ferrous metals, excursion fo	cused on the given						
2322091 On the basis of the	Project preliminary submission of a bachelor thesis the students, under supervision of their supervisors, prepare a review summarizing and e	1	2 ed literature					
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.							

2331065	Design Consideration	Z,ZK	5
	Design Consideration n design, production technique and economic aspects. Design considerations in casting, forming, welding, machining and assembly t	,	_
neialions betwee	and production technology selection. Component detailing for manufacture. CNC basis and using CNC.	ecimiques. basis	ioi materiai
2331068	Technology I.	Z,ZK	5
Foundry properties	of metals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of form	ing processes. Se	emi-products
	heating-up. Cutting. Cold and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. Brazing. Surface treatment	s.	
2331071	Automation of Production Processes	Z,ZK	5
Automation of bas	c technological processes - casting, welding, forming and finishing. Facilities and equipment required to automate offices. Mechanizat	ion and automation	on in iron and
steel foundries. A	automation and robotics of die casting process, including other peripherals. Designing and programming of robotic welding centers. De robotic workstations for sheet metal forming. Design of automated forging cells. Design of automated finishing lines.	esigning and prog	ramming of
2331505	Welding Technology	Z,ZK	4
2331506	Casting and Forming Technology	Z,ZK	5
	ion of the manufacturing method for semi-finished products. Production planning and production processes in the foundry. Production pr	,	-
•	material, utilized equipment. Production processes for stampings. Manufacturing of stampings, presses and equipment. Plastic mould	•	•
	production of a casting, forging or a stamping.	9	,
2332038	Surface Treatment Technology	KZ	4
	an introduction to the topic of finishes (meaning and objectives of the field). They are introduced to the basics of corrosion distribution		
	ction in engineering and other industries. Are reconstructed surface preparation processes (mechanical, chemical). Among the discusse		
	es (such as electroplating, zinc plating) technology conversion layers, further application of organic coatings. An important issue is also ec		
3	design and testing in the field of surface treatment.	5	
2332056	Preparations and Tools	KZ	3
	lection of the manufacturing method for semi-finished products. Production planning and production processes in the foundry. Produc		_
	aterial, utilized equipment. Production processes for stampings. Manufacturing of stampings, presses and equipment. Production proces		
, ,	sequence, filler materials, equipment. Plastic mouldings. Individual projects for production of a casting, forging or a stampin		
2332091	Project	KZ	2
2333017	Surface Treatment	7	3
	e surface treatments - branch signification and objects. Principles of corrosion, types and corrosion distribution. Anticorrosive preventi	_	_
	vention. Corrosion testing. Surface pre-treatment. Converse coatings, enamels. Inorganic coatings, electroplating, hot-dip galvanizing.		•
anticorrosive pre	aspects of surface treatments.	Organic coamigo	. Loologicai
2333038	Fundamentals of Technology I.	Z	3
	sses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technology.		1
•	isting: modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming tech		
	orging. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of wel	٠.	
	welding and arc welding with coated electrodes. Thermal cutting.	anigi i dolon nola	
2333993	Bachelor Thesis	Z	5
2341014		Z,ZK	5
	Technology II. formation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining econor		1
nechanics of chip	programming of manufacture. Engineering metrology. Assembly techniques. Introduction to process planing.	ilics. Automation	oi processes
0040005		1/7	
2342005	Quality Control	KZ	2
	ol terms, where is quality created, who is responsible for a quality. Basic statistical terms and distributions. Statistical methods: statist apling. Tools and methods for a quality assurance during product lifetime cycle. Standards 9 000 and 14 000, certification of quality or	-	oi, statisticai
2342091	Project	KZ	2
	Work on specialized tasks.		
2372041	Computer Support for Study	KZ	3
	ices students into creating technical and professional documents on computers or Web and into realizing technical computations with t		
	al skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating techn		
2383001	Fundamentals of Law	Z	2
	n legal system is a necessary part of professional equipment of each expert with university degree. The aim of this course is to provic		_
• •	ources of law and system of law (branch of law), using tutorials, lectures, specialised literature and significant legal regulations. It is n	•	
-	ons, that will be regularly in touch with, especially during their professional career and to learn how to work with the collection of laws.		
eads students to k	know some practical habits and processes while putting the law on, especially in domain of contracts and other important legal relation	ships and to mak	e them ready
	to prepare professional presentations and to understand basic structures between law and engineering		

For updated information see http://bilakniha.cvut.cz/en/FF.html Generated: day 2025-12-08, time 05:43.