Study plan

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

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch: Program of study: Welcome page Type of study: unknown full-time

Required credits: 183
Elective courses credits: -1
Sum of credits in the plan: 182
Note on the plan: první pokus

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 172

The role of the block: P

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

Name of the group: 07 2012 bakalá ský t locvik

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

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

Credits in the group: 3

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

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

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

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

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

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

Credits in the group: 6 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2333038	Fundamentals of Technology I.	Z	3	1P+1C	*	Р

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

2333038	Fundamentals of Technology I.	Z	3
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Production processes in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technology iron and steel. Casting: modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming technology. Hot and cold forging. Free and drop forging. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of welding. Fusion welding: Flame welding and arc welding with coated electrodes. Thermal cutting.

Code of the group: 12B-KMEN* VES

Name of the group: 01 2012 souhrn 12B**1P-KMEN a 12B**2P-KMEN Requirement credits in the group: In this group you have to gain 50 credits

Requirement courses in the group: In this group you have to complete 11 courses

Credits in the group: 50 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2182019	Chemistry Radek Šulc, Martin Dostál, Vojt ch B Iohlav, Stanislav Solna , Jan Sko ilas Radek Šulc Radek Šulc (Gar.)	KZ	3	2P+1C	1	Р
2021041	Physics I.	Z,ZK	7	4P+1L	*	Р
2011021	Constructive Geometry Ivana Linkeová	Z,ZK	6	3P+2C	*	Р
2011056	Mathematics I Radka Keslerová, Marta Hlavová, Ji í Holman, Gejza Dohnal, Marta ertíková, Vladimír Hric, Nikola Pajerová, Petr Louda, Lukáš Hájek, Radka Keslerová Gejza Dohnal (Gar.)	Z,ZK	8	4P+4C	*	Р
2011062	Matematika II. Radka Keslerová	Z,ZK	8	4P+4C	*	Р
2322029	Materials Science I. Jana Sobotová, Eliška Gal íková, Ji í Cejp, Pavlína Hájková, Jan Kr il, Vladimír Mára, Lucie Pilsová, Ta ana Vacková Jana Sobotová Jana Sobotová (Gar.)	KZ	3	2P+1L	2	Р
2012037	Computer Graphics Marta Hlavová, Ji í Holman, Nikola Pajerová, Martin Hanek, Jan Karel, Ivana Linkeová, Jaroslav Cibulka Ivana Linkeová Ivana Linkeová (Gar.)	KZ	3	1P+1C	*	Р
2372041	Computer Support for Study	KZ	3	1P+1C	*	Р
2131002	Engineering Design II Eliška Cézová, Jan Flek, Jan Kanaval, Karel Petr, Martin Dub, Martin Havlí ek, Jan Hoidekr, František Lopot, Roman Uhlí Karel Petr Karel Petr (Gar.)	Z,ZK	4	2P+3C	2	Р

Characteristics of the courses of this group of Study Plan: Code=12B-KMEN* VES Name=01 2012 souhrn 12B**1P-KMEN a 12B**2P-KMEN

2182019 | Chemistry | KZ | 3 General chemistry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties of matter, thermodynamics, phase equilibrium, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochemistry. Laboratory practice is oriented upon the material properties measurement.

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.

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.

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 relations.		
2011056	Mathematics I	Z,ZK	8

In the course, greater emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connections between concepts. Students will also get to know the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: eigennumbers and eigenvectors of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.

2011062 Matematika II. Z,ZK 8

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

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

2372041 | Computer Support for Study
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.

2131002 Engineering Design II

Z,ZK 4

Principles of ISO GPS (Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, 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.

Code of the group: 12BVP3P

Name of the group: 08 2012 BVES 3.sem prezen ní povinné

Requirement credits in the group: In this group you have to gain 31 credits

Requirement courses in the group: In this group you have to complete 7 courses

Credits in the group: 31

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
2021025	Physics II.	Z,ZK	4	1P+2L	3	Р

2011009	Mathematics III Radka Keslerová, Ji í Holman, Gejza Dohnal, Marta ertíková, Vladimír Hric, Jan Valášek, Lud k Beneš, Tomáš Bodnár, Tomáš Neustupa, Stanislav Kra mar Stanislav Kra mar (Gar.)	Z,ZK	5	2P+2C	*	Р
2321039	Materials Science II. Jana Sobotová, Eliška Gal íková, Ji í Cejp, Pavlína Hájková, Jan Kr il, Vladimír Mára, Lucie Pilsová, Ta ana Vacková, Jan Walter, Jana Sobotová Jana Sobotová (Gar.)	Z,ZK	4	2P+2L	*	Р
2331068	Technology I.	Z,ZK	5	2P+2C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12BVP3P Name=08 2012 BVES 3.sem prezen ní povinné								
2021025	Physics II. Z,ZK							
Faraday's law of electron	Faraday's law of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic waves. 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	n of elements.					
Spectra, x-rays, ;laser. E	Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 e	xperiments related	d to the lectures.					
2011009	Mathematics III	Z,ZK	5					
An introductory course i	n ordinary differential equation and infinite series.		'					
2321039	Materials Science II.	Z,ZK	4					
Fundamentals of metall	urgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal ar	nd thermo-mechar	nical processing,					
technical iron-carbon all	loys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materials.							
2331068	Technology I.	Z,ZK	5					
Foundry properties of m	Foundry properties of metals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of forming processes. Semi-products,							
eating-up. Cutting. Cold and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. Brazing. Surface treatments.								

Code of the group: 12BVP4P

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

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

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

Credits in the group: 22 Note on the group:

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

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

2342005	Quality Control	KZ	2						
Basic quality control terms, where is quality created, who is responsible for a quality. Basic statistical terms and distributions. Statistical methods: statistical process control, statistical									
sampling. Tools and me	ampling. Tools and methods for a quality assurance during product lifetime cycle. Standards 9 000 and 14 000, certification of quality control systems.								
2341014	Technology II.	Z.ZK	5						
nechanics of chip formation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining economics. Automation of processes,									
mechanics of chip forma	41014 Technology II. Z,ZK 5								

Code of the group: 12BV*5P

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

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

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

Credits in the group: 11 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2141204	Introduction to Electrical Engineering for Technology Jan Chyský, Lubomír Musálek, Martin Novák Lubomír Musálek Jan Chyský (Gar.)	Z,ZK	4	2P+0C+2L	*	Р
2383001	Fundamentals of Law Václav Pilík Václav Pilík (Gar.)	Z	2	1P+1C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12BV*5P Name=12 2012 BVES 5.sem povinné Introduction to Electrical Engineering for Technology

2141204	introduction to Electrical Engineering for rechnology	۷,۷۱۸	-
Elements of electrical ci	rcuits, analysis of electrical circuits as DC and AC. El. Power and Energy. Principle and typical parameters diodes, transistors	s, thyristors,opera	tion amplifiers.
Analogue and digital cire	cuits. AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Transformer. Induction machines.	Synchronous ma	chines.
DC-machines			

2383001 Fundamentals of Law Z 2

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-MAT

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

Requirement credits in the group: In this group you have to gain 18 credits

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

Credits in the group: 18 Note on the group:

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

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

Characteristics of the courses of this group of Study Plan: Code=12BV-5P-MAT Name=14 2012 BVES 5.sem zam MAT povinne								
2341001	Z,ZK	5						
Metrology, intergration	Metrology, intergration into quality control, legal metrology, metrology system. Geometrical quantities metrology. Measurement uncertainty. Primary and secondary standarts. Measurement							
in 1, 2, end 3 coordina	in 1, 2, end 3 coordinates. Laserinterferometres and their applications. Geometrical surface properties. Form - and position deviations. Surface structure - roughness, wawiness.							
Measurement automa	tisation.							
2331505	Welding Technology	Z,ZK	4					
2322041	Heat treatment	KZ	4					
Theoretical fundamentals of heat treatment, basic processes of heat and chemical-heat treatment of ferrous and non-ferrous metals, excursion focused on the given topic								

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:

	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

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

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

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

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

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

Credits in the group: 22 Note on the group:

Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their Code Completion Credits Scope Semester Role members) Tutors, authors and guarantors (gar.) **Bachelor Thesis** 2323993 7 5 0P+6C Р Jana Sobotová 2321501 Z,ZK 3P+1C 4 Jana Sobotová Р

2321503	Technical testing of materials Elena ižmárová	Z,ZK	5	2P+2C+0L	*	Р
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Characteristics of the courses of this group of Study Plan: Code=12BV*6P-MAT Name=16 2012 BVES 6.sem zam MAT povinné

2323993	Bachelor Thesis	Z	5
2321501		Z,ZK	4
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The course characterizes individual groups of new construction materials. In addition to the development and physical nature of these materials, the most commonly used types of recently developed materials, their basic characteristics and mechanical properties are listed. Their technological possibilities, design applicability and methods of their designations are also presented.

2321503 Technical testing of materials

Term and definition of properties. Verification of properties in a certified quality management system. Accredited test laboratory and test systems, test standard. Basic mechanical properties and testing the characteristics of metals, polymers, composites and ceramics. Testing of material for the limited state is the basic methods in accordance with the relevant standards. Test of resistance to brittle fracture, fatique, creep. Evaluation of technological properties. Defectoscopic method for detecting defects in the material.

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 11

The role of the block: PV

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

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

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

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

Credits in the group: 2

Note on the group:

Ze skupiny humanitních předmětů nutno j e d e n absolvovat

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role	
2383009	Communication and Dealing with People Jan Horeic, Vladimír Brdek Jan Horeic Jan Horeic (Gar.)	Z	2	1P+1C	*	PV	

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

Communication and Dealing with People

Human communication represents an irreplaceable phenomenon in human activity, as it is present in practically all of his activities. The same applies (with specific modifications) to the activities of managers. So you can't not communicate - you can only communicate badly, well and excellently.

Code of the group: 12BV*4Q-BZJ VES

Name of the group: 11 2012 bakalá ské zkoušky z jazyk pro VES

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

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

Credits in the group: 2

Note on the group:

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

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

2041061	English-Bachelor Exam	Z,ZK	2
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Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.

2041063	French - Bachelor Exam /FME	Z,ZK	2			
Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions,						
to write a summary, a	report and an essay, to read technical texts, to master grammar at advanced level.					
2041062	German - Bachelor Exam / FME	Z,ZK	2			
Mapped to the Commo	n European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	iculties, to take pa	rt in discussions,			
to write a summary, a	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 Commo	n European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	iculties, to take pa	rt in discussions,			
to write a summary, a	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 Commo	Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions,					
to write a summary, a	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
P edm t popisuje aplikovatelnost jednotlivých skupin inženýrských materiál a jejich odpovídající vlastnosti. Rovn ž se v nuje aktuálním vývojovým trend m t chto skupin. The subject describes applicability of specific engineering material types and their characteristics. It deals with the current development trends in these materials as well.

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

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

Requirement credits in the group: In this group you have to gain at least 2 credits (at most 8)

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

Credits in the group: 2 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2322091	Project Jana Sobotová, Ji í Cejp, Pavlína Hájková, Jan Kr il, Vladimír Mára, Ta ana Vacková, Jakub Horník, Ladislav Cvr ek, Elena ižmárová, Jana Sobotová Jana Sobotová (Gar.)	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 1povvol oborové projekty

2322091	Project	KZ !	2	1				
On the basis of the prelin	ninary submission of a bachelor thesis the students, under supervision of their supervisors, prepare a review summarizing a	nd evaluating the	studied literature	ı				
with particular emphasis	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.				ı				

2332091	Project	KZ	2	
2342091	Project	KZ	2	
Work on specialized tas				

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

The role of the block: V

Code of the group: 12BV**V-ALFA

Name of the group: 02 2012 ALFA volitelné pro VES

Requirement credits in the group: Requirement courses in the group: Credits in the group: 0 Note on the group:

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

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

202A041	Physics I.		3
Kinematics and dyn	amics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic	properties of boo	lies. Oscillations,
waves. Fluid mecha	nics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co	onductors, semicor	nductors,
insulators. Magnetic	field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and inc	direct measureme	nts, regression,
measurements of 1	I various experiments related to the lectures.		
201A021	Constructive Geometry A	ZK	3
The subject is focus	ed on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.		<u> </u>
201A056	Mathematics I.A	ZK	4
Introduction to linea	r algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable		·
201A062	Mathematics II.A	ZK	4
Open and closed se	t, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differe	ential operators di	v (divergence)
and curl (rotation). F	unction given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integ	ıral, Fubini theoren	n. Transformation
of integrals to polar,	cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Gi	reen'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 ve	ctor field through	a surface. The

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

Name of the group: 05 2012 doporu ené seminá e

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

Credits in the group: 0

Note on the group:

Gauss-Ostrogradskij theorem.

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

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

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

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

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

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

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

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

Credits in the group: 0 Note on the group:

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.)

English Conversation
Ilona Šimice, Michele Le Blanc Ilona Šimice Michele Le Blanc (Gar.)

Name of the course / Name of the group of courses
Completion
Credits Scope Semester Role

Role

2 2 0P+2C *

2046156	English Conversation Ilona Šimice, Michele Le Blanc	Z	2	0P+2C	L	V
2046071	English - Lower Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová	Z	2	0P+2C	L	V
2046070	English - Lower Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046074	English - Advanced Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová, Michele Le Blanc Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046075	English - Advanced Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová, Michele Le Blanc Ilona Šimice Ilona Šimice (Gar.)	Z	2	0P+2C	L	V
2046072	English - Upper Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046073	English - Upper Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Ilona Šimice Ilona Šimice (Gar.)	Z	2	0P+2C	L	V
2046068	English - Beginners Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046069	English - Beginners Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Ilona Šimice	Z	2	0P+2C	L	V
2046126	Czech Lower Intermediate Jaroslava Kommová	Z	2	0P+2C	L	V
2046125	Czech Lower Intermediate	Z	2	0P+2C	Z	V
2046118	Jaroslava Kommová Czech -Advanced	Z	2	0P+2C	L	V
2046117	Jaroslava Kommová Czech -Advanced		2	0P+2C	Z	
	Jaroslava Kommová					V
2046127	Czech - Upper Intermediate Jaroslava Kommová	Z	2	0P+2C	Z	V
2046128	Czech - Upper Intermediate Jaroslava Kommová	Z	2	0P+2C	L	V
2046119	Czech Language for Beginners I. Jaroslava Kommová	Z	2	0P+2C	Z	V
2046120	Czech Language for Beginners II. Jaroslava Kommová	Z	2	0P+2C	L	V
2046086	French - Lower Intermediate Course Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046087	French - Lower Intermediate Course Michaela Schusová, Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	L	V
2046091	French - Advanced Michaela Schusová, Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	L	V
2046090	French - Advanced Michaela Schusová, Dušana Jirovská, Eliška Vítková Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046089	French - Upper Intermediate Michaela Schusová, Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	L	V
2046088	French - Upper Intermediate Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046084	French - Beginners Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046085	French - Beginners' Course Michaela Schusová, Dušana Jirovská Michaela Schusová Dušana Jirovská (Gar.)	Z	2	0P+2C	L	V
2146060	Indonesian Language Course for Exchange	Z	2	0P+2C	*	V
2146061	Technical Indonesian - Course I.	Z	2	0P+2C	Z	V
2144062	Technical Indonesian - Course II.	Z,ZK	3	1P+2C	L	V
2046078	German - Lower Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046079	German - Lower Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046083	German - Advanced Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Jaroslava Kommová Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V

2046082	German - Advanced Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	٧
2046081	German - Upper Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046080	German - Upper Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046076	German - Beginners Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Petr Laurich (Gar.)	Z	2	0P+2C	Z	V
2046077	German - Beginners Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046161	Presentations in English Michaela Schusová	Z	2	0P+2C	*	V
2046166	Presentations in Czech Jaroslava Kommová	Z	2	0P+2C	*	V
2046162	Presentations in German Jaroslava Kommová, Eliška Vítková, Petr Laurich Jaroslava Kommová Jaroslava Kommová (Gar.)	Z	2	0P+2C	*	٧
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 Michaela Schusová, Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046141	Russian - Advanced Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046142	Russian - Advanced Michaela Schusová, Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046140	Russian - Upper Intermediate Michaela Schusová, Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046139	Russian - Upper Intermediate Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	٧
2046136	Russian - Beginners Michaela Schusová, Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046135	Russian - Beginners Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046099	Spanish - Lower Intermediate Michaela Schusová, Jaime Andrés Villagómez Eliška Vítková Jaime Andrés Villagómez (Gar.)	Z	2	0P+2C	L	٧
2046098	Spanish - Lower Intermediate Michaela Schusová, Eliška Vítková, Jaime Andrés Villagómez Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046096	Spanish - Beginners Michaela Schusová, Eliška Vítková, Jaime Andrés Villagómez Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046097	Spanish - Beginners Michaela Schusová, Jaime Andrés Villagómez Jaime Andrés Villagómez Jaime Andrés Villagómez (Gar.)	Z	2	0P+2C	L	V

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

kurzy a prezentac	ce .		
2046155	English Conversation	Z	2
Improving communicat	ive skills in speaking on general topics and general technical topics.	•	
2046156	English Conversation	Z	2
Improving communicat	ive skills in speaking on general topics and general technical topics.	'	•
2046071	English - Lower Intermediate	Z	2
Mapped to the Commo	n European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which	a student meets	either at school
or at his/her free time a	and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improvem	ent of professiona	al language.
2046070	English - Lower Intermediate	Z	2
Aim: Understanding 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 sir	nple way about
familiar topics. Reading	and comprehension of simple texts. Improvement of professional language. A1 - A2.		
2046074	English - Advanced	Z	2
The aim: comprehension	n of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Writ	ten and oral skills	on advanced
level. Ability to write a s	summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's fie	ld of studies with	out difficulties.
Grammar structures or	a advanced level. B1 - B2.		

2046075	English - Advanced	Z	2
	n European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in E	-	
	in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and compre	hension of popula	r-scientific and
scientific articles or text	ts from student's field of studies without difficulties. Grammar structures on advanced level.		
2046072	English - Upper Intermediate	Z	2
	nguage skills taking into consideration professional English and common professional terminology. Comprehension of standard	d English speech a	and conversation
	y life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1.		
2046073	English - Upper Intermediate	Z	2
	n European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional En	_	-
knowledge.	nsion of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on interm	iediale ievei. Broa	dening grammar
2046068	English - Beginners	Z	2
	English - Degitiners of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (p		
2046069	English - Beginners	7	2
	ր Errigiish - Degriffiers n European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understan	_	
	minology (professional language).	ang and doo or be	acio expressione
2046126	Czech Lower Intermediate	Z	2
	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	. – .	
_	and comprehension of simple texts. Improvement of professional language.	· ·	. ,
2046125	Czech Lower Intermediate	Z	2
	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	ı ∍m. Writing in a sir	nple way about
familiar topics. Reading	and comprehension of simple texts. Improvement of professional language.		
2046118	Czech -Advanced	Z	2
Mapped to the level of	Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in C	Zzech without grea	at difficulties and
active participation in a	discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehen	sion of popular-sc	eientific and
	s from student's field of studies without difficulties. Grammar structures on advanced level.		
2046117	Czech -Advanced	Z	2
i i	ten language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in	=	essing opinions.
	write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical a		
2046127	Czech - Upper Intermediate	Z	2
_	d speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abili	ty to describe exp	eriences and
	ne's opinions and plans. Reading and understanding general and technical texts.		
2046128	Czech - Upper Intermediate	Z	2
	n European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional		-
knowledge technical la	nsion of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on inter	mediate level. Bro	adening the
2046119	Czech Language for Beginners I.	Z	2
	pozectifically days for Degitties 1. Bryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profes	_	
2046120	Czech Language for Beginners II.	7	2
	n European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understan		_
	minology (professional language).	ang and acc or a	acio expressione
2046086	French - Lower Intermediate Course	Z	2
	what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wr	1	
	mprehension of simple texts. Improvement of professional language.		,
2046087	French - Lower Intermediate Course	Z	2
	Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which	a student meets:	at school or in
his/her free time and sp	peaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	of professional lan	iguage.
2046091	French - Advanced	Z	2
Mapped to the level of	Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on to	pics familiar to the	student.
	tive speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading an	nd understanding	texts concerning
	ular scientific and technical articles.		
2046090	French - Advanced	Z	2
	ken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participatio		Expressing
	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and te		
2046089	French - Upper Intermediate	Z	2
	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students c		
	Iking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understa		
2046088	French - Upper Intermediate	Z	2
_	d speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abili one´s opinions and plans. Reading and understanding general and technical texts.	ly to describe exp	enences and
2046084		Z	2
	French - Beginners vhat is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wr	1	
	mprehension of simple texts. Improvement of professional language.	ing in a cimple in	ay about lammar
2046085	French - Beginners' Course	Z	2
	Preficit - Degriffers' Course Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which	1	
	peaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement		
2146060	Indonesian Language Course for Exchange	Z	2
	nguage for Student Exchange Program to Indonesia		
2146061	Technical Indonesian - Course I.	Z	2
	ian Language for Student Exchange Program to Indonesia	· '	<u></u> _
2144062	Technical Indonesian - Course II.	Z,ZK	3
Basic of Indonesian La	nguage for Student Exchange Program to Indonesia		

2046097	Spanish - Beginners	Z	2
M 1 4 - 41 - 0	Conserve Conserved of Defensive Level A4. About Indicates discussed in a classic content of a conserved content of the first of the content o	-4	

Mapped to the Common European Framework of Reference Level A1. Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.

List of courses of this pass:

Code	Name of the course	Completion	Credits
2011009	Mathematics III	Z,ZK	5
	An introductory course in ordinary differential equation and infinite series.		
2011021	Constructive Geometry The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relation	Z,ZK ons.	6
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 connection		ts. Students
will also get to know	$the \ procedures \ for \ solving \ problems \ with \ parametric \ input. \ In \ addition, \ students \ will \ gain \ extended \ knowledge \ in \ some \ the matic \ areas: extended \ knowledge \ in \ some \ the matic \ areas: extended \ knowledge \ in \ some \ the matic \ areas: extended \ knowledge \ in \ some \ the matic \ areas: extended \ knowledge \ in \ some \ the matic \ areas: extended \ knowledge \ in \ some \ the matic \ areas: extended \ knowledge \ in \ some \ the matic \ areas: extended \ knowledge \ in \ some \ the matic \ areas: extended \ knowledge \ in \ some \ the matic \ areas: extended \ knowledge \ in \ some \ the matic \ areas: extended \ knowledge \ in \ some \ the matic \ areas: extended \ knowledge \ in \ some \ the matic \ areas: extended \ knowledge \ in \ some \ the matic \ areas: extended \ knowledge \ in \ some \ the matic \ areas: extended \ knowledge \ in \ some \ the matic \ areas: extended \ knowledge \ in \ some \ the matic \ areas: extended \ th$	igennumbers and e	eigenvectors
	of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.		
2011062	Matematika II.	Z,ZK	8
-	set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differentiables.		
of integrals to polar	Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, r, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Greer se of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector Gauss-Ostrogradskij theorem.	s theorem. A pote	ential vector
2012037	Computer Graphics	KZ	3
2016007	Mathematics I Seminar	Z	2
201A021	Constructive Geometry A	ZK	3
	The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relation		
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		ı
201A062	Mathematics II.A	ZK	4
and curl (rotation). F of integrals to polar	set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differenticulation given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, r. cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Greer to fall line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector Gauss-Ostrogradskij theorem.	Fubini theorem. Tra n's theorem. A pote	nsformation ential vector
2021025	Physics II.	Z.ZK	4
	try Sics 11. ctromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of elec	,	
Faraday's law of elec		tromagnetic waves	
-		-	
of radiation with m	atter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 expe	periodic system of	f elements.
of radiation with m	atter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and	periodic system of	f elements.
of radiation with masses Spectra, x-rays, ;las	atter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiences.	periodic system of riments related to to Z,ZK	f elements. the lectures.
of radiation with masspectra, x-rays, ;lass 2021041 Kinematics and dyn	atter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiences. Physics I.	periodic system of riments related to to Z,ZK perties of bodies.	f elements. the lectures. 7 Oscillations,
of radiation with m. Spectra, x-rays, ;las 2021041 Kinematics and dyn waves. Fluid me	atter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiments of 6 experiments of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiments of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic procedures. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Concede field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect.	periodic system of riments related to to Z,ZK perties of bodies. Inductors, semicon	f elements. the lectures. 7 Oscillations,
of radiation with m Spectra, x-rays, ;las 2021041 Kinematics and dyn waves. Fluid me insulators. Magnetic	atter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiments of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiments of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic procedures. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co c field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect measurements of 11 various experiments related to the lectures.	periodic system of riments related to to Z,ZK perties of bodies. on ductors, semicon ct measurements,	f elements. the lectures. 7 Oscillations, ductors, regression,
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2046069	English - Beginners	Z	2
Mapped to the Co	mmon European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding	and use of basic	expressions
	of general scientific terminology (professional language).		
2046070	English - Lower Intermediate and clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Z	2
Aim. Onderstandi	familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.	writing in a simple	e way about
2046071	English - Lower Intermediate	Z	2
	pmmon European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which a s	_	1
or at his/her free	e time and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improvement	nt of professional	language.
2046072	English - Upper Intermediate	Z	2
The aim is to exter	nd language skills taking into consideration professional English and common professional terminology. Comprehension of standard English and common professional terminology.	-	conversation
0040070	about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 -		
2046073	English - Upper Intermediate ommon European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional Englis	Z	2
	prehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermedia	-	
,p	knowledge.		
2046074	English - Advanced	Z	2
	hension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Writter		
level. Ability to w	rite 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. B1 - B2.		
2046075	English - Advanced	Z	2
	ommon European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in English as well as lectures given in English as well as lectures given in English as a lecture given in English as well as lectures given in Englis		
and delive parties	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.	ision of popular s	cicrumo ana
2046076	German - Beginners	Z	2
Basic vocabulary	of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profession	al language) It co	rresponds to
	the Common European Framework of Reference for Languages A1.		
2046077	German - Beginners	Z	2
Mapped to the le	vel Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding and	d use of basic exp	oressions of
2040070	general scientific terminology (professional language).	7	
2046078	German - Lower Intermediate Course ng clearly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking about	them Writing in a	2 simple way
Aim. Onderstand	about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	them. whiting 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	student meets eit	her at school
or in his/her fre	te time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement	nt of professional I	anguage.
2046080	German - Upper Intermediate Course	Z	2
Understanding s	tandard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	to describe exper	iences and
2046094	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.	Z	1 2
2046081 Manned to the le	German - Upper Intermediate Course vel of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students com	_	2 at school
	and talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding		
2046082	German - Advanced Course	Z	2
Comprehension	of spoken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participation	n in discussions. E	xpressing
opinions.	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a	and technical artic	les.
2046083	German - Advanced Course	Z	2
	el of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in Ge	_	
and active particip	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.	nsion of popular-s	scientific and
2046084	French - Beginners	Z	2
	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	_	1
, and the second	topics. Reading and comprehension of simple texts. Improvement of professional language.	. ,	
2046085	French - Beginners' Course	Z	2
Mapped to the le	vel of Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which a	student meets at	school or in
	me 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 cle	early what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing topics. Reading and comprehension of simple texts. Improvement of professional language.	ın a sımpıe way a	idout tamiliar
2046087	French - Lower Intermediate Course	Z	2
	vel of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a		
	me and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement		
2046088	French - Upper Intermediate	Z	2
Understanding s	tandard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	to describe exper	iences and
	events, briefly explain one 's opinions and plans. Reading and understanding general and technical texts.		1
2046089	French - Upper Intermediate	Z	2
	vel of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students com		
	and talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding.		
2046090 Comprehension	French - Advanced of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participation	Z n in discussions F	xpressing
	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a		
-7	, and a second and popular continued		-

2046091	French - Advanced	Z	2		
	level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on to	_			
	th native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and u	-			
	currant issues and popular scientific and technical articles.	J	J J		
2046096	Spanish - Beginners	7	2		
	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	. – .			
/ lini.onderstandii	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	writing in a simple	way about		
2046097	Spanish - Beginners	Z	2		
	j Spanish - Degriffers Common European Framework of Reference Level A1. Aim: Understanding clearly what is spoken about everyday situations which a	_			
	ne and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement				
2046098		7	2		
	Spanish - Lower Intermediate Spanish - Lower Intermediate arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	_			
Understanding clea	any what is spoken about everyday situations which a student meets at school of in his/her free time and speaking about them. whiting topics. Reading and comprehension of simple texts. Improvement of professional language.	j in a simple way at	out lamiliar		
20.40000					
2046099	Spanish - Lower Intermediate	Z	2		
1	el of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a studer				
	and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of	orofessional 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.		
-	en skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and t				
2046118	Czech -Advanced	Z	2		
	el of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Cze				
active participat	ion in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehens	ion of popular-scie	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 voc	abulary 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		
Mapped to the Cor	nmon European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understandin	g and use of basic	expressions		
	of general scientific terminology (professional language).				
2046125	Czech Lower Intermediate	Z	2		
	n g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Writing in a simple	way about		
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		,		
2046126	Czech Lower Intermediate	7	2		
	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.	g	,		
2046127	Czech - 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	- 1			
Oriderstanding st	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.	to describe experie	crices and		
2046128	Czech - Upper Intermediate	7	2		
	OZECT - OPPELITIENTIALE mmon European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional Cz	_			
1 ''	nprehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on interm				
terminology. Cor	knowledge technical language.	iediate ievei. Dioad	ieriirig trie		
2046425	, , , , , , , , , , , , , , , , , , ,	7	2		
2046135	Russian - Beginners	Z Z	2		
	abulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p				
2046136	Russian - Beginners	Z	2		
Mapped to the lev	rel 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	Z	2		
Understanding clea	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	ງ in a simple way at	oout familiar		
	topics. Reading and comprehension of simple texts. Improvement of professional language.				
2046138	Russian - Lower Intermediate Course	Z	2		
1	el of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a stude				
	and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of				
2046139	Russian - Upper Intermediate	Z	2		
Understanding st	iandard 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		
Mapped to the le	vel of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student me	ets at work, at scho	ool, during		
free time, and talki	ng about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understandi	ng general and tecl	hnical texts.		
2046141	Russian - Advanced	Z	2		
Comprehension	of spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation	n in discussions. E	xpressing		
opinions.	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific	and technical article	es.		
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	pics familiar to the			
	th native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and u	•			
currant issues and popular scientific and technical articles.					
2046155	English Conversation	Z	2		
	Improving communicative skills in speaking on general topics and general technical topics.	1	ı		
2046156	English Conversation	Z	2		
	Improving communicative skills in speaking on general topics and general technical topics.	_	_		
2046161	Presentations in English	Z	2		
2070101	Preparing students to present in English on technical topics, with a possible co-operation with specialized departments.	- 1	_		

2046162	Presentations in German Preparation for presenting technical topics in German, possibly in cooperation with specialized departments.	Z	2
2046163	Presentations in French language Preparation for presenting technical topics in French, possibly in cooperation with specialized departments.	Z	2
2046164	Presentations in Russian Preparation for presenting technical topics in Russian, possibly in cooperation with specialized departments.	Z	2
2046165	Presentations in Spanish Preparation for presenting technical topics in Spanish, possibly in cooperation with specialized departments.	Z	2
2046166	Presentations in Czech Preparing students to give presentations in English on technical topics, with a possible co-operation with specialized department.	Z	2
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	Z,ZK	4
	ical circuits, analysis of electrical circuits as DC and AC. El. Power and Energy. Principle and typical parameters diodes, transistors, digital circuits. AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Transformer. Induction machine DC-machines		
2144062	Technical Indonesian - Course II. Basic of Indonesian Language for Student Exchange Program to Indonesia	Z,ZK	3
2146060	Indonesian Language Course for Exchange Basic of Indonesian Language for Student Exchange Program to Indonesia	Z	2
2146061	Technical Indonesian - Course I. Second part of Indonesian Language for Student Exchange Program to Indonesia	Z	2
	Chemistry y from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and propertien, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biochemistry		-
	oriented upon the material properties measurement.		T .
2321039 Fundamentals of m	Materials Science II. letallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of mate		processing,
	Technical Application of Materials plikovatelnost jednotlivých skupin inženýrských materiál a jejich odpovídající vlastnosti. Rovn ž se v nuje aktuálním vývojovým trer bes applicability of specific engineering material types and their characteristics. It deals with the current development trends in these		5 .The subject
2321501	bes applicability of specific engineering material types and their characteristics, it deals with the current development trends in these	Z,ZK	4
The course chara	cterizes individual groups of new construction materials. In addition to the development and physical nature of these materials, the identification described materials, their basic characteristics and mechanical properties are listed. Their technological possibilities, design applicability and are also presented.	•	
2321503	Technical testing of materials	Z,ZK	5
properties and test	on of properties. Verification of properties in a certified quality management system. Accredited test laboratory and test systems, testing the characteristics of metals, polymers, composites and ceramics. Testing of material for the limited state is the basic methods in the characteristics. Petertagasian method for detecting do	n accordance with	the relevant
2322029	ds. Test of resistance to brittle fracture, fatique, creep. Evaluation of technological properties. Defectoscopic method for detecting de Materials Science I.	KZ	3
History and prese	ent state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, deformations, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations,	rmation, recrystalli	zation and
2322041	Heat treatment undamentals of heat treatment, basic processes of heat and chemical-heat treatment of ferrous and non-ferrous metals, excursion for	KZ	4
2322091	Project	KZ	2
	preliminary submission of a bachelor thesis the students, under supervision of their supervisors, prepare a review summarizing and mphasis on experimental technologies which can be applied in their bachelor theses. They can also mention a planned experiment	-	
2323993	knowledge or results. Bachelor Thesis	Z	5
2331068	Technology I.	Z,ZK	5
Foundry properties	of metals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of for heating-up. Cutting. Cold and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. Brazing. Surface treatment		mi-products,
2331071	Automation of Production Processes ctechnological processes and equipment required to automate offices. Mechanizate changes and equipment required to automate offices.	Z,ZK	5
	utomation and robotics of die casting process, including other peripherals. Designing and programming of robotic welding centers. Designing and programming of robotic welding centers. Carrollogical robotic workstations for sheet metal forming. Design of automated forging cells. Design of automated finishing lines.		
2331505	Welding Technology	Z,ZK	4
2332091	Project Fundamentals of Tashnalamul	KZ	2
2333038 Production proces	Fundamentals of Technology I. ses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, tech	Z nnical metals. Produ	3 action of pig
iron and steel. Cas	sting: modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming tec orging. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of we welding and arc welding with coated electrodes. Thermal cutting.	chnology. Hot and c	old forging.
2341001	Metrology	Z,ZK	5
	on into quality control, legal metrology, metrology system. Geometrical quantities metrology. Measurement uncertainty. Primary and sec ordinates. Laserinterferometres and their applications. Geometrical surface properties. Form - and position deviations. Surface struc Measurement automatisation.	-	

2244044	Tachaglamull	7 71/	
2341014	Technology II.	Z,ZK	5
mechanics of chip	formation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining econor	nics. Automation o	of processes
	programming of manufacture. Engineering metrology. Assembly techniques. Introduction to process planing.		
2342005	Quality Control	KZ	2
Basic quality conti	ol terms, where is quality created, who is responsible for a quality. Basic statistical terms and distributions. Statistical methods: statisti	cal process contr	ol, statistica
sai	npling. Tools and methods for a quality assurance during product lifetime cycle. Standards 9 000 and 14 000, certification of quality co	ontrol systems.	
2342091	Project	KZ	2
	Work on specialized tasks.		
2372041	Computer Support for Study	KZ	3
The course introdu	ces students into creating technical and professional documents on computers or Web and into realizing technical computations with	he use of compute	rs. Students
gain praction	al skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating techni	cal-based WWW	page.
2383001	Fundamentals of Law	Z	2
Basic orientation i	n legal system is a necessary part of professional equipment of each expert with university degree. The aim of this course is to provid	e a view into the	Czech Legal
Order, particular s	ources of law and system of law (branch of law), using tutorials, lectures, specialised literature and significant legal regulations. It is n	ecessary for stude	ents to know
our legal institution	ons, 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 k	now some practical habits and processes while putting the law on, especially in domain of contracts and other important legal relation	ships and to make	them ready
	to prepare professional presentations and to understand basic structures between law and engineering		
2383009	Communication and Dealing with People	Z	2
Human communi	cation represents an irreplaceable phenomenon in human activity, as it is present in practically all of his activities. The same applies (with specific modi	fications) to
	the activities of managers. So you can't not communicate - you can only communicate hadly well and excellently		

For updated information see http://bilakniha.cvut.cz/en/FF.html Generated: day 2025-07-19, time 22:13.