## Study plan

## Name of study plan: 20 86 90 00 BVES TVA 2012 K základ

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

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

Required credits: 177
Elective courses credits: 0
Sum of credits in the plan: 177
Note on the plan: první pokus

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 166

The role of the block: P

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 lohlav, 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 <b>Jana Sobotová</b> Jana Sobotová (Gar.)	KZ	3	2P+1L	2	Р
2012037	Computer Graphics Marta Hlavová, Ji i Holman, Nikola Pajerová, Martin Hanek, Jan Karel, Ivana Linkeová, Jaroslav Cibulka <b>Ivana Linkeová</b> 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 propertic	es of matter, therr	nodynamics,
phase equilibrium, chen	nical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and bioch	emistry. Laborato	ry practice is
oriented upon the mater	ial 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, 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.

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.

 2012037
 Computer Graphics
 KZ
 3

 2372041
 Computer Support for Study
 KZ
 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 again 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.

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: 12B\*K\*P-ZT12

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

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

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

Credits in the group: 6 Note on the group:

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

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

K333038 Fundamentals of Technology I. Z 3

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

Code of the group: 12BVK3P

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

Requirement credits in the group: In this group you have to gain 30 credits

Requirement courses in the group: In this group you have to complete 6 courses

Credits in the group: 30 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
K331068	Technology I	Z,ZK	5	16B	*	Р

#### Characteristics of the courses of this group of Study Plan: Code=12BVK3P Name=08 2012 BVES 3.sem kombi povinné

2021025 Physics II. Z,ZK 4
Faraday's law of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic waves. Interaction

Faraday's law of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic waves. Interaction of radiation with matter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and periodic system of elements. Spectra, x-rays, ;laser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiments related to the lectures.

2011009	Mathematics III	Z,ZK	5
An introductory course i	n ordinary differential equation and infinite series.		

2321039 Materials Science II.

Z,ZK

Fundamentals of metallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and thermo-mechanical processing,

technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materials.

K331068 Technology I

Z,ZK

| Z,ZN | 3

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

Code of the group: 12BVK4P

Name of the group: 09 2012 BVES 4.sem kombi 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
K341014	Technology II.	Z,ZK	5	8KP+8KC	*	Р

Characteristics of the courses of this group of Study Plan: Code=12BVK4P Name=09 2012 BVES 4.sem kombi povinné

2342005	Quality Control	KZ	2					
Basic quality control te	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	ethods for a quality assurance during product lifetime cycle. Standards 9 000 and 14 000, certification of quality control system	ns.						
K341014	K341014 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

2141204	Introduction to Electrical Engineering for Technology	∠,∠K	4	ŀ
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	ition ampli	fiers.
Analogue and digital cir	cuits. AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Transformer. Induction machines.	Synchronous ma	achines.	
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-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, 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-TVA Name=14 2012 BVES 5.sem zam TVA povinné

2332038 Surface Treatment Technology KZ 4

TPU The course is an introduction to the topic of finishes (meaning and objectives of the field). They are introduced to the basics of corrosion distribution and its species. TPU focuses on corrosion protection in engineering and other industries. Are reconstructed surface preparation processes (mechanical, chemical). Among the discussed technologies finishes include coating technologies (such as electroplating, zinc plating) technology conversion layers, further application of organic coatings. An important issue is also ecological aspects, Technological design and testing in the field of surface treatment.

2331505	Welding Technology	Z,ZK	4
2322041	Heat treatment	KZ	4
2322041 Heat treatment  Theoretical fundamentals of heat treatment hasic processes of heat and chemical-heat treatment of ferrous and non-ferrous metals, excursion foci		sed on the given t	onic

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

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: 12BVK6P-TVA

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

Requirement credits in the group: In this group you have to gain 21 credits

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

Credits in the group: 21 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
2331506	Casting and Forming Technology	Z,ZK	5	3P+2C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12BVK6P-TVA Name=16 2012 BVES 6.sem zam TVA komb povinné

2333993	Bachelor Thesis	Z	5
2332056	Preparations and Tools	KZ	3
Dringiples of coloction of	of the manufacturing method for somi finished products. Draduction planning and production processes in the foundry Draduct	tion processes fo	r forgings

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.

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.

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 Horejc, Vladimír Brdek Jan Horejc Jan Horejc (Gar.)	Z	2	1P+1C	*	PV

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

2383009 Communication and Dealing with People Z 2

Human communication represents an irreplaceable phenomenon in human activity, as it is present in practically all of his activities. The same 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:

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

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

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

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
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 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.			
2332091	Project	KZ	2
2342091	Project	KZ	2
Work on specialized ta	sks.	•	•

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

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

1			
insulators. Magneti	c field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and ir	idirect measureme	ents, regression,
measurements of	1 various experiments related to the lectures.		
201A021	Constructive Geometry A	ZK	3
The subject is focu	sed on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.		•
201A056	Mathematics I.A	ZK	4
Introduction to line	ar algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable	<u> </u>	·
2014062	Mathematics II A	7K	1

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,

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

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

Name of the group: 05 2012 doporu ené seminá e

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

Credits in the group: 0

Note on the group:

202A041

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 n	eant for high-school students for repetition of high-school physics.		
2016007	Mathematics I Seminar	Z	2

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

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

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

Credits in the group: 0

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

2046068	English - Beginners Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046069	English - Beginners Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Ilona Šimice	Z	2	0P+2C	L	V
2046126	Czech Lower Intermediate  Jaroslava Kommová	Z	2	0P+2C	L	V
2046125	Czech Lower Intermediate  Jaroslava Kommová	Z	2	0P+2C	Z	V
2046118	Czech -Advanced Jaroslava Kommová	Z	2	0P+2C	L	V
2046117	Czech -Advanced Jaroslava Kommová	Z	2	0P+2C	Z	V
2046127	Czech - Upper Intermediate  Jaroslava Kommová	Z	2	0P+2C	Z	V
2046128	Czech - Upper Intermediate  Jaroslava Kommová	Z	2	0P+2C	L	V
2046119	Czech Language for Beginners I.  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	٧
2046089	French - Upper Intermediate Michaela Schusová, Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	L	٧
2046088	French - Upper Intermediate Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	٧
2046084	French - Beginners Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046085	French - Beginners' Course Michaela Schusová, Dušana Jirovská Michaela Schusová Dušana Jirovská (Gar.)	Z	2	0P+2C	L	V
2146060	Indonesian Language Course for Exchange	Z	2	0P+2C	*	V
2146061	Technical Indonesian - Course I.	Z	2	0P+2C	Z	V
2144062	Technical Indonesian - Course II.	Z,ZK	3	1P+2C	L	V
2046078	German - Lower Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046079	German - Lower Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046083	German - Advanced Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Jaroslava Kommová Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046082	German - Advanced Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046081	German - Upper Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046080	German - Upper Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046076	German - Beginners Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Petr Laurich (Gar.)	Z	2	0P+2C	Z	V
2046077	German - Beginners Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046161	Presentations in English Michaela Schusová	Z	2	0P+2C	*	V
2046166	Presentations in Czech	Z	2	0P+2C	*	V

2046162	Presentations in German  Jaroslava Kommová, Eliška Vítková, Petr Laurich Jaroslava Kommová	Z	2	0P+2C	*	V
	Jaroslava Kommová (Gar.)					
2046164	Presentations in Russian Dušana Jirovská	Z	2	0P+2C	*	V
2046163	Presentations in French language Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	*	٧
2046165	Presentations in Spanish Eliška Vítková	Z	2	0P+2C	*	٧
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	٧
2046140	Russian - Upper Intermediate Michaela Schusová, Hana Volejníková, Dušana Jirovská <b>Dušana Jirovská</b>	Z	2	0P+2C	L	٧
2046139	Russian - Upper Intermediate Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046136	Russian - Beginners Michaela Schusová, Hana Volejníková, Dušana Jirovská <b>Dušana Jirovská</b>	Z	2	0P+2C	L	٧
2046135	Russian - Beginners Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková <b>Michaela Schusová</b> Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046099	Spanish - Lower Intermediate Michaela Schusová, Jaime Andrés Villagómez Eliška Vítková Jaime Andrés Villagómez (Gar.)	Z	2	0P+2C	L	V
2046098	Spanish - Lower Intermediate Michaela Schusová, Eliška Vítková, Jaime Andrés Villagómez Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046096	Spanish - Beginners Michaela Schusová, Eliška Vítková, Jaime Andrés Villagómez Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046097	Spanish - Beginners Michaela Schusová, Jaime Andrés Villagómez Jaime Andrés Villagómez Jaime Andrés Villagómez (Gar.)	Z	2	0P+2C	L	V

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

2046155	English Conversation	Z	2
Improving communic	cative skills in speaking on general topics and general technical topics.	<u> </u>	
2046156	English Conversation	Z	2
Improving communic	cative skills in speaking on general topics and general technical topics.	<u> </u>	
2046071	English - Lower Intermediate	Z	2
1 ''	mon European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations whicl e and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improven		
2046070	English - Lower Intermediate	Z	2
	clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the ing and comprehension of simple texts. Improvement of professional language. A1 - A2.	em. Writing in a si	mple way about
2046074	English - Advanced	Z	2
The aim: compreher	ision of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Wri	tten 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 fie	eld of studies with	out difficulties.
Grammar structures	on advanced level. B1 - B2.		
2046075	English - Advanced	Z	2
Mapped to the Com	mon European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in	English without gr	eat difficulties
and active participat	ion 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	ar-scientific and
scientific articles or	exts from student's field of studies without difficulties. Grammar structures on advanced level.		
2046072	English - Upper Intermediate	Z	2
The aim is to extend	language skills taking into consideration professional English and common professional terminology. Comprehension of standar	d English speech	and conversation
about topics of every	rday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1.		
2046073	English - Upper Intermediate	Z	2
Mapped to the Com	non European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional Er	nglish and commo	n professional
terminology. Compre	hension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on interr	nediate level. Broa	adening grammar
knowledge.			
2046068	English - Beginners	Z	2
Aim: Basic vocabula	ry of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (p	orofessional langu	age). A1
2046069	English - Beginners	Z	2
Mapped to the Com	non European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understar	nding and use of b	asic expressions
of general scientific	erminology (professional language).		

12046426	Czoch Lower Intermediate	Z	2
2046126	Czech Lower Intermediate  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.	sin. Writing in a sim	ipie way about
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		_
_	and comprehension of simple texts. Improvement of professional language.	Ü	. ,
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 0	Czech without grea	t 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 compreher	nsion of popular-sci	ientific and
scientific articles or tex	is from student's field of studies without difficulties. Grammar structures on advanced level.		
2046117	Czech -Advanced	Z	2
	sen language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in	•	essing opinions
Written skills. Ability to	write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical a		
2046127	Czech - Upper Intermediate	Z	2
_	d speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abil	ity to describe expe	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 professiona		-
knowledge technical la	nsion of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on inter	mediale level. Broa	adening the
2046119		7	2
	Czech Language for Beginners I.  Bryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profes	. – .	2
2046120	Czech Language for Beginners II.	7	2
	। Ozectr Language for Degittiers II. n European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understar		_
* *	minology (professional language).	iding and use of ba	isio expressioni
2046086	French - Lower Intermediate Course	Z	2
	phat is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wi	- 1	<del>-</del>
	mprehension of simple texts. Improvement of professional language.	ining in a dimplo we	ay about larrilla
2046087	French - Lower Intermediate Course	Z	2
	Therion - Lower Intermediate Godise  Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which		_
	peaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement		
2046091	French - Advanced	7	2
	Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on to	- 1	_
' '	tive speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a	-	
	ular scientific and technical articles.	J	
2046090	French - Advanced	Z	2
1	ken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participation	on 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 to	echnical articles.	
2046089	French - Upper Intermediate	Z	2
Mapped to the level of	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students c	comes across at wo	ork, at school,
during free time, and ta	lking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understa	anding general and	l technical texts
2046088	French - Upper Intermediate	Z	2
Understanding standar	d speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abil	ity to describe expe	eriences and
events, briefly explain of	ne's opinions and plans. Reading and understanding general and technical texts.		
2046084	French - Beginners	Z	2
	what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wi	riting in a simple wa	ay about familia
topics. Reading and co	mprehension of simple texts. Improvement of professional language.		
2046085	French - Beginners' Course	Z	2
	Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which		
	beaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	of professional land	
2146060	Indonesian Language Course for Exchange	Z	2
	nguage for Student Exchange Program to Indonesia		
2146061	Technical Indonesian - Course I.	Z	2
Second part of Indones	ian Language for Student Exchange Program to Indonesia		
2144062	Technical Indonesian - Course II.	Z,ZK	3
Basic of Indonesian La	nguage for Student Exchange Program to Indonesia	<u> </u>	
2046078	German - Lower Intermediate Course	Z	2
Aim: Understanding cle	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	em. Writing in a sim	nple way about
	and comprehension of simple texts. Improvement of professional language.	<del> </del>	
2046079	German - Lower Intermediate Course	Z	2
	Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which		
	nd speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement		
2046083	German - Advanced Course	Z	2
	Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in	-	_
	in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compress from student's field of studies without difficulties. Grammar structures on advanced level.	enension of popula	ıı-scientific and
	is from student's field of studies without difficulties. Grammar structures on advanced level.	<del></del>	
	German - Advanced Course	Z I	2 Expressing
2046082	ken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participat		⊏xpressing
Comprehension of spo	Ability to write an account a report Deading and understanding tayle concerning average issues and popular!!!!!		
Comprehension of spo opinions. Written skills.	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and te		
Comprehension of spo opinions. Written skills. 2046081	German - Upper Intermediate Course	Z	2
Comprehension of spo opinions. Written skills. 2046081 Mapped to the level of		Z comes across at wo	ork, at school,

2046080	German - Upper Intermediate Course	Z	2
Understanding standar	d speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abili	ty to describe exp	eriences and
events, briefly explain of	one's opinions and plans. Reading and understanding general and technical texts.		
2046076	German - Beginners	Z	2
Basic vocabulary of eve	eryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profes	sional language)	
2046077	German - Beginners	Z	2
Mapped to the level Co	mmon European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding	and use of basic	expressions of
general scientific termin	nology (professional language).		
2046161	Presentations in English	Z	2
Preparing students to p	present in English on technical topics, with a possible co-operation with specialized departments.		
2046166	Presentations in Czech	Z	2
	ijvie presentations in English on technical topics, with a possible co-operation with specialized departments.	1	
2046162	Presentations in German	Z	2
	ing technical topics in German, possibly in cooperation with specialized departments.	ı	
2046164	Presentations in Russian	Z	2
	ing technical topics in Russian, possibly in cooperation with specialized departments.	_	_
2046163	Presentations in French language	Z	2
	ing technical topics in French, possibly in cooperation with specialized departments.	_	_
2046165	Presentations in Spanish	Z	2
	ing technical topics in Spanish, possibly in cooperation with specialized departments.	_	_
2046137	Russian - Lower Intermediate Course	7	2
	what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wr	_	
	mprehension of simple texts. Improvement of professional language.	iting in a simple w	ay about farilliai
2046138	Russian - Lower Intermediate Course	Z	2
	Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a stu	_	_
	about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of profe		1001 01 111 1113/1101
2046141	Russian - Advanced	7	2
2040141	Trussian - Advanced	_	
Comprehension of spo	ken language as well as lectures in Russian on tonics familiar to the student. Communication with native speakers, participati	on in discussions	
	ken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participati		
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.	. Expressing
opinions. Written skills.	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and tell Russian - Advanced	echnical articles.	Expressing 2
opinions. Written skills. 2046142 Mapped to the level of	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and te Russian - Advanced  Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on t	echnical articles.  Z opics familiar to the	Expressing  2 ne student.
opinions. Written skills.  2046142  Mapped to the level of Communication with na	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and te Russian - Advanced  Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on tative speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading an	echnical articles.  Z opics familiar to the	Expressing  2 ne student.
opinions. Written skills.  2046142  Mapped to the level of Communication with na currant issues and pop	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and te Russian - Advanced  Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to the speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and are scientific and technical articles.	echnical articles.  Z opics familiar to the opics familiar to the opics familiar to the opic	Expressing  2 ne student. texts concerning
opinions. Written skills.  2046142  Mapped to the level of Communication with na currant issues and pop  2046140	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and te Russian - Advanced  Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to the speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading an ular scientific and technical articles.  Russian - Upper Intermediate	echnical articles.  Z opics familiar to the dunderstanding	2 ne student. texts concerning
opinions. Written skills.  2046142  Mapped to the level of Communication with na currant issues and pop  2046140  Mapped to the level of	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and te Russian - Advanced  Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to the stive speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading an ular scientific and technical articles.  Russian - Upper Intermediate  Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student reference.	echnical articles.  Z opics familiar to the dunderstanding  Z neets at work, at s	2 ne student. texts concerning 2 school, during
opinions. Written skills.  2046142  Mapped to the level of Communication with na currant issues and pop  2046140  Mapped to the level of free time, and talking a	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and te Russian - Advanced  Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on the stive speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading an ular scientific and technical articles.  Russian - Upper Intermediate  Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student report these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding standard speech about familiar matters that a student report these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding standard speech about familiar matters that a student report is a standard speech about familiar matters that a student report is a standard speech about familiar matters that a student report is a standard speech about familiar matters that a student report is a standard speech about familiar matters that a student report is a standard speech about familiar matters that a student report is a standard speech about familiar matters that a student report is a standard speech about familiar matters that a student report is a standard speech about familiar matters that a student report is a standard speech about familiar matters that a student report is a standard speech about familiar matters that a student report is a standard speech about familiar matters that a student report is a standard speech about familiar matters that a student report is a standard speech about familiar matters that a student report is a standard speech about familiar matters that a student report is a standard speech about familiar matters that a student report is a standard speech about familiar matters that a student report is a standard speech ab	echnical articles.  Z opics familiar to the dunderstanding  Z neets at work, at sinding general and	2 ne student. texts concerning 2 school, during d technical texts.
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# List of courses of this pass:

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.

Code	Name of the course	Completion	Credits
2011009	Mathematics III	Z,ZK	5
	An introductory course in ordinary differential equation and infinite series.		'
2011021	Constructive Geometry	Z,ZK	6
	The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relation	ons.	

			,
2011056	Mathematics I ter emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connection	Z,ZK	te Studente
	the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: e  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. Different		
-	Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral,		
	r, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green		
field, independent	ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector Gauss-Ostrogradskij theorem.	or field through a su	urface. The
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	'	' I
201A062	Mathematics II.A	ZK	4
Open and closed	. set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Different	ial operators div (d	livergence)
	Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral,		
	r, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green	· · · · · · · · · · · · · · · · · · ·	
field, independent	ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector	or field through a su	urface. The
0004005	Gauss-Ostrogradskij theorem.	7.71/	
2021025	Physics II.	Z,ZK	4
	ectromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of elec natter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and		
	ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 expe		
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	1 ' 1	
	echanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co	-	
	ic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indire		
	measurements of 11 various experiments related to the lectures.		
2026016	Physics - Seminar	Z	2
	The subject is mainly meant for high-school students for repetition of high-school physics.		
202A041	Physics I.	ZK	3
-	namics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic pro	-	
	echanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co ic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indire		
ilisulators. Magneti	measurements of 11 various experiments related to the lectures.	ci measurements,	regression,
2041061	English-Bachelor Exam	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.		
2041062	German - Bachelor Exam / FME	Z,ZK	2
Mapped to the Com	imon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult	ies, to take part in o	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 Com	nmon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult	ties, to take part in t	discussions,
0044004	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	7.71	
2041064	Spanish - Bachelor Exam / FME	Z,ZK	2
Mapped to the Com	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.	lies, to take part in t	discussions,
2041065	Russian - 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		
mapped to the com-	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.		,
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		' '
2046069	English - Beginners	Z	2
Mapped to the Con	nmon European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding	g and use of basic	expressions
	of general scientific terminology (professional language).		
2046070	English - Lower Intermediate	Z	2
Aim: Understandin	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Writing in a simple	way about
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.		
2046071	English - Lower Intermediate	Z	2
* *	mmon European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which a state and appearing about them. Writing in a simple way about familiar topics reading and comprehension of simple toyte Improvement		
	time and speaking about them. Writing in a simple way about familiar topics, reading and comprehension of simple texts. Improveme		
2046072	English - Upper Intermediate	Z   Indish speech and c	2 conversation
THE AITH IS ID EXIGN	d language skills taking into consideration professional English and common professional terminology. Comprehension of standard En about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2		onversation
2046073	English - Upper Intermediate	Z	2
	English - Opper intermediate  mmon European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional Engli		
	rehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermedi		
	knowledge.		

2046074	English - Advanced	Z	2
	nension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Writter		
level. Ability to wri	te a summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's field	of studies without of	difficulties.
2046075	Grammar structures on advanced level. B1 - B2.	7	
2046075	English - Advanced pmmon European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in Eng	Z	2 difficultion
* *	ation 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.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
2046076	German - Beginners	Z	2
Basic voca	abulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p	rofessional langua	ge)
2046077	German - Beginners	Z	2
Mapped to the leve	el Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding an	d use of basic expr	ressions of
	general scientific terminology (professional language).		
2046078	German - Lower Intermediate Course	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. familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	vvriting in a simple	way about
2046079	German - Lower Intermediate Course	Z	2
	German - Lower Intermediate Course   I 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. Improvemen		
2046080	German - Upper Intermediate Course	Z	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 experie	
	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.		
2046081	German - Upper Intermediate Course	Z	2
	el of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students com		
<u> </u>	nd talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding	ig general and tech	
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, participatioi Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a		
2046083	German - Advanced Course	7	2
	el of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in Ge	ا erman without grea	II.
	ation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehen	=	
	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.		
2046084	French - Beginners	Z	2
Understanding clea	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	in a simple way at	out familiar
0040005	topics. Reading and comprehension of simple texts. Improvement of professional language.	7	
2046085	French - Beginners´ Course el of Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which a	Z Z	2
* *	he and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement		
2046086	French - Lower Intermediate Course	7	2
	rrly 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 al	
	topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046087	French - Lower Intermediate Course	Z	2
* *	el of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a		
	ne and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement		
2046088	French - Upper Intermediate	Z	2
Understanding sta	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 so opinions and plans. Reading and understanding general and technical texts.	to describe experie	ences and
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		
	nd talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding		II.
2046090	French - Advanced	Z	2
Comprehension	of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participation	in discussions. Ex	pressing
opinions.\	Nritten skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a	nd technical article	
2046091	French - Advanced	Z	2
	evel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on top		II.
Communication wit	h 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.	nuersianding texts	concerning
2046096	Spanish - Beginners	Z	2
	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.		
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	5 2 Spio	.,
2046097	Spanish - Beginners	Z	2
* *	ommon European Framework of Reference Level A1. Aim: Understanding clearly what is spoken about everyday situations which a s		II.
	ne and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	of professional lan	guage.
2046098	Spanish - Lower Intermediate	Z	2
Understanding clea	urly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	ın a simple way ab	out familiar
2046000	topics. Reading and comprehension of simple texts. Improvement of professional language.	Z	
2046099 Mapped to the leve	Spanish - Lower Intermediate of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a studen		2 or in his/her
	nd speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of p		

2046117	Czech -Advanced	Z	2
Comprehension of s	poken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in disc	cussions. Expressir	ng opinions.
Writte	n skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to	echnical articles.	
2046118	Czech -Advanced	Z	2
l l	of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czec	h without great diff	iculties 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 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
	oulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p	-	
2046120	Czech Language for Beginners II.	7	2
	mon European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding	and use of basic (	
Mapped to the Com	of general scientific terminology (professional language).	j and use of basic t	sxpressions
2040425		7	
2046125	Czech Lower Intermediate	. – .	2
Aim: Understanding	clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	vvriting in a simple	way about
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		_
2046126	Czech Lower Intermediate	Z	2
Aim: Understanding	clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Writing in a simple	way about
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046127	Czech - Upper Intermediate	Z	2
Understanding sta	ndard 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
	mon European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional Cz	ech and common r	rofessional
	prehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on interm		
	knowledge technical language.		
2046135	Russian - Beginners	Z	2
	oulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p	-	
		7	
2046136	Russian - Beginners		2
Mapped to the leve	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	ly 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 ab	out familiar
	topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046138	Russian - Lower Intermediate Course	Z	2
Mapped to the level	of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a studer	nt meets at school	or in his/her
free time ar	d speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of p	orofessional langua	ge.
2046139	Russian - Upper Intermediate	Z	2
Understanding sta	ndard 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
	el of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student me	-	
• •	g about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding		
2046141		ng gornorar aria tool	illiour toxto.
	Russian - Advanced	7	2
	analysis language as well as lactures in Dussian on taping familiar to the attribute. Communication with notice analysis participation at	Z	2
•	f spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation	n in discussions. Ex	kpressing
opinions. V	/ritten skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a	n in discussions. Ex	xpressing es.
opinions. V 2046142	/ritten skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a Russian - Advanced	n in discussions. Exand technical article	xpressing es.
opinions. V 2046142 Mapped to the le	/ritten skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a  Russian - Advanced  vel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to	n in discussions. Exand technical article  Z  ppics familiar to the	es. 2 student.
opinions. V 2046142 Mapped to the le	ritten skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a Russian - Advanced vel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and u	n in discussions. Exand technical article  Z  ppics familiar to the	es. 2 student.
opinions. V 2046142 Mapped to the le	/ritten skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a  Russian - Advanced  vel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to	n in discussions. Exand technical article  Z  ppics familiar to the	es. 2 student.
opinions. V 2046142 Mapped to the le	ritten skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a Russian - Advanced vel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and u	n in discussions. Exand technical article  Z  ppics familiar to the	es. 2 student.
opinions. V 2046142 Mapped to the le Communication with	ritten skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a Russian - Advanced vel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to 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.	n in discussions. Exand technical article  Z  ppics familiar to the inderstanding texts	es.  2 student. concerning
opinions. V 2046142 Mapped to the le Communication with	International Proving Communicative skills and popular scientific and versal topics and popular scientific and versal topics.  Russian - Advanced  vel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to a native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and uncurrant issues and popular scientific and technical articles.  English Conversation  Improving communicative skills in speaking on general topics and general technical topics.	n in discussions. Example technical article  Z ppics familiar to the inderstanding texts	es.  2 student. concerning
opinions. V 2046142 Mapped to the le Communication with	Aritten skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a Russian - Advanced  vel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to 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.  English Conversation	n in discussions. Exand technical article  Z  ppics familiar to the inderstanding texts	es.  2 student. concerning
opinions. V 2046142   Mapped to the le Communication with 2046155	Internative skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a Russian - Advanced  vel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to 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.  English Conversation  Improving communicative skills in speaking on general topics and general technical topics.  English Conversation  Improving communicative skills in speaking on general topics and general technical topics.	n in discussions. Example technical article  Z popics familiar to the inderstanding texts  Z	xpressing as.  2 student. concerning  2
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opinions. V 2046142   Mapped to the le Communication with 2046155	Internative shills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a Russian - Advanced  vel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to a native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and uncurrant issues and popular scientific and technical articles.  English Conversation  Improving communicative skills in speaking on general topics and general technical topics.  English Conversation  Improving communicative skills in speaking on general topics and general technical topics.  Presentations in English  Preparing students to present in English on technical topics, with a possible co-operation with specialized departments.  Presentations in German	n in discussions. Example technical article  Z popics familiar to the inderstanding texts  Z	xpressing as.  2 student. concerning  2
opinions. V 2046142   Mapped to the le Communication with 2046155   2046161   2046162	Aritten skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a Russian - Advanced  vel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to a native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and uncurrant issues and popular scientific and technical articles.  English Conversation  Improving communicative skills in speaking on general topics and general technical topics.  English Conversation  Improving communicative skills in speaking on general topics and general technical topics.  Presentations in English  Preparing students to present in English on technical topics, with a possible co-operation with specialized departments.  Presentations in German  Preparation for presenting technical topics in German, possibly in cooperation with specialized departments.	n in discussions. Exand technical article  Z ppics familiar to the inderstanding texts  Z  Z  Z  Z  Z	xpressing ass.  2 student. concerning  2 2  2 2  2 2
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opinions. V 2046142   Mapped to the le Communication with 2046155   2046156   2046161   2046162   2046163	Aritten skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific at Russian - Advanced  wel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to a native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and uncurrant issues and popular scientific and technical articles.  English Conversation  Improving communicative skills in speaking on general topics and general technical topics.  English Conversation  Improving communicative skills in speaking on general topics and general technical topics.  Presentations in English  Preparing students to present in English on technical topics, with a possible co-operation with specialized departments.  Presentations in German  Preparation for presenting technical topics in German, possibly in cooperation with specialized departments.  Presentations in French language  Preparation for presenting technical topics in French, possibly in cooperation with specialized departments.  Presentations in Russian	n in discussions. Exand technical article  Z pics familiar to the inderstanding texts  Z  Z  Z  Z  Z	xpressing as.  2 student. concerning  2 2  2 2  2 2
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opinions. V 2046142   Mapped to the le Communication with 2046155   2046156   2046161   2046163   2046164   2046165	Aritten skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a Russian - Advanced  vel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and uncurrant issues and popular scientific and technical articles.  English Conversation Improving communicative skills in speaking on general topics and general technical topics.  English Conversation Improving communicative skills in speaking on general topics and general technical topics.  Presentations in English Preparing students to present in English on technical topics, with a possible co-operation with specialized departments.  Presentations in German Preparation for presenting technical topics in German, possibly in cooperation with specialized departments.  Presentations in French language Preparation for presenting technical topics in French, possibly in cooperation with specialized departments.  Presentations in Russian Preparation for presenting technical topics in Russian, possibly in cooperation with specialized departments.  Presentations in Spanish Preparation for presenting technical topics in Spanish, possibly in cooperation with specialized departments.	n in discussions. Exand technical article  Z pics familiar to the inderstanding texts  Z  Z  Z  Z  Z  Z  Z  Z	xpressing sps.  2 student. concerning  2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
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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, t		
Analogue and	digital circuits. AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Transformer. Induction machines	s. Synchronous ma	chines.
04.44000	DC-machines	7 71/	0
2144062	Technical Indonesian - Course II.	Z,ZK	3
24.46060	Basic of Indonesian Language for Student Exchange Program to Indonesia	Z	2
2146060	Indonesian Language Course for Exchange Basic of Indonesian Language for Student Exchange Program to Indonesia	Z	2
2146061	Technical Indonesian - Course I.	Z	2
2140001	Second part of Indonesian Language for Student Exchange Program to Indonesia	_	2
2182019	Chemistry	KZ	3
	y from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties		
	n, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biocher		-
	oriented upon the material properties measurement.	, ,	
2321039	Materials Science II.	Z,ZK	4
Fundamentals of m	letallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and th	ermo-mechanical	processing,
	technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of material	als.	
2321067	Technical Application of Materials	Z,ZK	5
P edm t popisuje a	plikovatelnost jednotlivých skupin inženýrských materiál a jejich odpovídající vlastnosti. Rovn ž se v nuje aktuálním vývojovým treno	d m t chto skupin.	The subject
descri	bes applicability of specific engineering material types and their characteristics. It deals with the current development trends in these	materials as well.	
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	-	
	erials, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, in		
2322041	Heat treatment	KZ	4
	undamentals of heat treatment, basic processes of heat and chemical-heat treatment of ferrous and non-ferrous metals, excursion for		
2322091	Project	KZ	2
	preliminary submission of a bachelor thesis the students, under supervision of their supervisors, prepare a review summarizing and e	=	
with particular e	mphasis on experimental technologies which can be applied in their bachelor theses. They can also mention a planned experiment o knowledge or results.	r evaluate nitnerto	obtained
2331071	Automation of Production Processes	Z,ZK	5
	ration and or Froduction Frocesses c technological processes - casting, welding, forming and finishing. Facilities and equipment required to automate offices. Mechanizat		_
	utomation and robotics of die casting process, including other peripherals. Designing and programming of robotic welding centers. Designing and programming of robotic welding centers. Designing and programming of robotic welding centers.		
	robotic workstations for sheet metal forming. Design of automated forging cells. Design of automated finishing lines.	· g · · · · g · · · · · g ·	
2331505	Welding Technology	Z,ZK	4
2331506	Casting and Forming Technology	Z,ZK	5
	on of the manufacturing method for semi-finished products. Production planning and production processes in the foundry. Production pr		_
Accuracy, stock	material, utilized equipment. Production processes for stampings. Manufacturing of stampings, presses and equipment. Plastic mould	dings. Individual pr	ojects for
	production of a casting, forging or a stamping.		
2332038	Surface Treatment Technology	KZ	4
TPU The course is	an introduction to the topic of finishes (meaning and objectives of the field). They are introduced to the basics of corrosion distribution	and its species. T	PU focuses
TPU The course is on corrosion protect	an introduction to the topic of finishes (meaning and objectives of the field). They are introduced to the basics of corrosion distribution tion in engineering and other industries. Are reconstructed surface preparation processes (mechanical, chemical). Among the discusse	n and its species. T d technologies finis	PU focuses shes include
TPU The course is on corrosion protect	an introduction to the topic of finishes (meaning and objectives of the field). They are introduced to the basics of corrosion distribution tion in engineering and other industries. Are reconstructed surface preparation processes (mechanical, chemical). Among the discusse s (such as electroplating, zinc plating) technology conversion layers, further application of organic coatings. An important issue is also ec	n and its species. T d technologies finis	PU focuses shes include
TPU The course is on corrosion protect coating technologie	an introduction to the topic of finishes (meaning and objectives of the field). They are introduced to the basics of corrosion distribution in engineering and other industries. Are reconstructed surface preparation processes (mechanical, chemical). Among the discusse s (such as electroplating, zinc plating) technology conversion layers, further application of organic coatings. An important issue is also ecdesign and testing in the field of surface treatment.	n and its species. T d technologies finis ological aspects, To	PU focuses shes include echnological
TPU The course is on corrosion protect coating technologie 2332056	an introduction to the topic of finishes (meaning and objectives of the field). They are introduced to the basics of corrosion distribution in engineering and other industries. Are reconstructed surface preparation processes (mechanical, chemical). Among the discusse s (such as electroplating, zinc plating) technology conversion layers, further application of organic coatings. An important issue is also ecdesign and testing in the field of surface treatment.  Preparations and Tools	n and its species. To d technologies finis ological aspects, To KZ	PU focuses shes include echnological
TPU The course is on corrosion protect coating technologie 2332056 Principles of sel	an introduction to the topic of finishes (meaning and objectives of the field). They are introduced to the basics of corrosion distribution in engineering and other industries. Are reconstructed surface preparation processes (mechanical, chemical). Among the discusse s (such as electroplating, zinc plating) technology conversion layers, further application of organic coatings. An important issue is also ecdesign and testing in the field of surface treatment.  Preparations and Tools ection of the manufacturing method for semi-finished products. Production planning and production processes in the foundry. Production	n and its species. I d technologies finis ological aspects, To KZ tion processes for	PU focuses shes include echnological 3 forgings.
TPU The course is on corrosion protect coating technologie 2332056 Principles of sel	an introduction to the topic of finishes (meaning and objectives of the field). They are introduced to the basics of corrosion distribution in engineering and other industries. Are reconstructed surface preparation processes (mechanical, chemical). Among the discusse s (such as electroplating, zinc plating) technology conversion layers, further application of organic coatings. An important issue is also ecdesign and testing in the field of surface treatment.  Preparations and Tools ection of the manufacturing method for semi-finished products. Production planning and production processes in the foundry. Producterial, utilized equipment. Production processes for stampings. Manufacturing of stampings, presses and equipment. Production processes	n and its species. I d technologies finis ological aspects, To KZ tion processes for ses for weldments.	PU focuses shes include echnological 3 forgings.
TPU The course is on corrosion protect coating technologie 2332056 Principles of sel Accuracy, stock ma	an introduction to the topic of finishes (meaning and objectives of the field). They are introduced to the basics of corrosion distribution in engineering and other industries. Are reconstructed surface preparation processes (mechanical, chemical). Among the discusse s (such as electroplating, zinc plating) technology conversion layers, further application of organic coatings. An important issue is also eccesses (such as electroplating, zinc plating) technology conversion layers, further application of organic coatings. An important issue is also eccesses and testing in the field of surface treatment.  Preparations and Tools ection of the manufacturing method for semi-finished products. Production planning and production processes in the foundry. Producterial, utilized equipment. Production processes for stampings. Manufacturing of stampings, presses and equipment. Production processes sequence, filler materials, equipment. Plastic mouldings. Individual projects for production of a casting, forging or a stamping.	n and its species. I d technologies finis ological aspects, To KZ tion processes for ses for weldments. g.	PU focuses shes include echnological  3 forgings. Operational
TPU The course is on corrosion protect coating technologies 2332056 Principles of sel Accuracy, stock ma 2332091	an introduction to the topic of finishes (meaning and objectives of the field). They are introduced to the basics of corrosion distribution in engineering and other industries. Are reconstructed surface preparation processes (mechanical, chemical). Among the discusse s (such as electroplating, zinc plating) technology conversion layers, further application of organic coatings. An important issue is also eccesses (such as electroplating, zinc plating) technology conversion layers, further application of organic coatings. An important issue is also eccesses and testing in the field of surface treatment.  Preparations and Tools ection of the manufacturing method for semi-finished products. Production planning and production processes in the foundry. Producterial, utilized equipment. Production processes for stampings. Manufacturing of stampings, presses and equipment. Production processes (filler materials, equipment. Plastic mouldings. Individual projects for production of a casting, forging or a stampin Project	n and its species. I d technologies finis ological aspects, To KZ tion processes for ses for weldments. g.	PU focuses shes include echnological 3 forgings. Operational 2
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TPU The course is on corrosion protect coating technologies 2332056 Principles of sel Accuracy, stock ma 2332091 2333993 2342005 Basic quality contri	an introduction to the topic of finishes (meaning and objectives of the field). They are introduced to the basics of corrosion distribution tion in engineering and other industries. Are reconstructed surface preparation processes (mechanical, chemical). Among the discusses (such as electroplating, zinc plating) technology conversion layers, further application of organic coatings. An important issue is also expected design and testing in the field of surface treatment.  Preparations and Tools ection of the manufacturing method for semi-finished products. Production planning and production processes in the foundry. Producterial, utilized equipment. Production processes for stampings. Manufacturing of stampings, presses and equipment. Production processes sequence, filler materials, equipment. Plastic mouldings. Individual projects for production of a casting, forging or a stamping.  Project  Bachelor Thesis  Quality Control of terms, where is quality created, who is responsible for a quality. Basic statistical terms and distributions. Statistical methods: statistical control or contro	n and its species. To detechnologies finisological aspects, To KZ tion processes for ses for weldments. g. KZ Z KZ call process control	PU focuses shes include eachnological  3 forgings. Operational  2 5 2
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iron and steel. Cas	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 fo	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.					
K341014	Technology II.	Z,ZK	5			

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