## Study plan

## Name of study plan: 16 80 85 00 DVES TVA 2012 P

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

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

Required credits: 115
Elective courses credits: 66
Sum of credits in the plan: 181

Note on the plan: SP12DVES-MUSTR # SP12BVES-EKO-P # první pokus

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 106

The role of the block: P

Code of the group: 12BVP4P

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

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

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

Credits in the group: 22 Note on the group:

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

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

| 2342005   | Quality Control   | KZ                | 2                |  |  |  |  |
|---|---|-------------------|------------------|--|--|--|--|
| Basic quality control terms, where is quality created, who is responsible for a quality. Basic statistical terms and distributions. Statistical methods: statistical process control, statistical |   |                   |                  |  |  |  |  |
| sampling. Tools and me  | ethods for a quality assurance during product lifetime cycle. Standards 9 000 and 14 000, certification of quality control syster | ns.               |                  |  |  |  |  |
| 2341014   | Technology II.  | Z,ZK              | 5                |  |  |  |  |
| mechanics of chip formation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining economics. Automation of processes,            |   |                   |                  |  |  |  |  |
| mechanics of chip form  | ation, cutting processes, infishing operations, non-traditional machining processes. Production rates calculation, machining ecc  | mornics. Automati | on or processes, |  |  |  |  |

Code of the group: 12BV\*5P

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

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

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

Credits in the group: 11 Note on the group:

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

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

2141204 Introduction to Electrical Engineering for Technology Z,ZK 4
Elements of electrical circuits, analysis of electrical circuits as DC and AC. El. Power and Energy. Principle and typical parameters diodes, transistors, thyristors, operation amplifiers.
Analogue and digital circuits. AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Transformer. Induction machines. Synchronous machines.
DC-machines

2383001 Fundamentals of Law Z

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  | n engineering and other industries. Are reconstructed surface preparation processes (mechanical, chemical). Among the discu   | ssed technologies | s finishes include |  |  |  |  |  |
| coating technologies (su   | 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 th   | design and testing in the field of surface treatment.   |                   |                    |  |  |  |  |  |
|  |   |                   |                    |  |  |  |  |  |

| 2331505                | Welding Technology   | Z,ZK               | 4    |
|------------------------|--|--------------------|------|
| 2322041                | Heat treatment   | KZ                 | 4    |
| Theoretical fundamenta | als of heat treatment, basic processes of heat and chemical-heat treatment of ferrous and non-ferrous metals, excursion focu | sed on the given t | opic |

Code of the group: 12BV\*6P

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

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

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

Credits in the group: 9
Note on the group:

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

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

| 2331071                  | Automation of Production Processes   | Z,ZK              | 5            | l |  |  |  |
|--------------------------|--|-------------------|--------------|---|--|--|--|
| Automation of basic tech | 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. Automa  | tion and robotics of die casting process, including other peripherals. Designing and programming of robotic welding centers.   | Designing and pro | ogramming of | l |  |  |  |
| robotic workstations for | sheet metal forming. Design of automated forging cells. Design of automated finishing lines.   |                   |              |   |  |  |  |

Code of the group: 12BVP6P-TVA

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

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

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

Credits in the group: 22 Note on the group:

| Code    | Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.) | Completion | Credits | Scope | Semester | Role |
|---------|---|------------|---------|-------|----------|------|
| 2333993 | Bachelor Thesis   | Z          | 5       | 0P+6C | *        | Р    |
| 2332056 | Preparations and Tools  | KZ         | 3       | 0P+3C | *        | Р    |
| 2331065 | Design Consideration  | Z,ZK       | 5       | 3P+1C | *        | Р    |

| 2331506 | Casting and Forming Technology | Z,ZK | 5 | 3P+2C | * | Р |
|---------|--------------------------------|------|---|-------|---|---|
|         |                                |      |   |       |   |   |

Characteristics of the courses of this group of Study Plan: Code=12BVP6P-TVA Name=16 2012 BVES 6.sem zam TVA prez povinné

| 2333993                    | Bachelor Thesis  | Z                 | 5          |
|----------------------------|--|-------------------|------------|
| 2332056                    | Preparations and Tools   | KZ                | 3          |
| Principles of selection of | of the manufacturing method for semi-finished products. Production planning and production processes in the foundry Produc | tion processes fo | r forgings |

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

2331065 **Design Consideration**  Z,ZK

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

2331506 Casting and Forming Technology Z.ZK

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

Code of the group: 12DVP1P-KMEN

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

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

Credits in the group: 0

Note on the group:

12B\*\*1P-KMEN #

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

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

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

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|---|----------------------------|------|---|
| 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.

2372041 Computer Support for Study

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

Code of the group: 12DVP2P-KMEN

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

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

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

Credits in the group: 25

Note on the group.

12B\*\*2P-KMEN #

| Code    | Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) | Completion | Credits | Scope | Semester | Role |
|---------|---|------------|---------|-------|----------|------|
| 2021041 | Tutors, authors and guarantors (gar.)  Physics I.   | Z,ZK       | 7       | 4P+1L | *        | Р    |
| 2011062 | Matematika II. Radka Keslerová  | Z,ZK       | 8       | 4P+4C | *        | Р    |

| 2322029 | Materials Science I.<br>Jana Sobotová, Eliška Gal íková, Ji í Cejp, Pavlína Hájková, Jan Kr il, Vladimír<br>Mára, Lucie Pilsová, Ta ana Vacková <b>Jana Sobotová</b> Jana Sobotová (Gar.) | KZ   | 3 | 2P+1L | 2 | Р |
|---------|---|------|---|-------|---|---|
| 2012037 | Computer Graphics<br>Marta Hlavová, Ji í Holman, Nikola Pajerová, Martin Hanek, Jan Karel, Ivana<br>Linkeová, Jaroslav Cibulka <b>Ivana Linkeová</b> Ivana Linkeová (Gar.)                | KZ   | 3 | 1P+1C | * | Р |
| 2333017 | Surface Treatment   | Z    | 3 | 1P+1C | * | Р |
| 2131002 | Engineering Design II<br>Eliška Cézová, Jan Flek, Jan Kanaval, Karel Petr, Martin Dub, Martin Havlí ek,<br>Jan Hoidekr, František Lopot, Roman Uhlí <b>Karel Petr</b> Karel Petr (Gar.)   | Z,ZK | 4 | 2P+3C | 2 | Р |
| 2333038 | Fundamentals of Technology I.   | Z    | 3 | 1P+1C | * | Р |

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

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,

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.

2322029 Materials Science I.

measurements of 11 various experiments related to the lectures.

ΚZ

History and present state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, deformation, recrystallization and fracture of materials, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, iron-carbon phase diagram.

| 2012037   | Computer Graphics  | KZ | 3 |  |  |  |  |
|---|--------------------|----|---|--|--|--|--|
| 2333017   | Surface Treatment  | Z  | 3 |  |  |  |  |
| Introduction to the surface treatments - branch signification and objects. Principles of corrosion, types and corrosion distribution. Anticorrosive prevention in manufacturing, method |                    |    |   |  |  |  |  |
|   | - Oi tti Of tt Oti |    | [ |  |  |  |  |

anticorrosive prevention. Corrosion testing. Surface pre-treatment. Converse coatings, enamels. Inorganic coatings, electroplating, hot-dip galvanizing. Organic coatings. Ecological aspects of surface treatments.

2131002 Engineering Design II

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

2333038 Fundamentals of Technology I.

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

Code of the group: 12DVP3P-KMEN

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

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

Credits in the group: 0

Note on the group:

2011009

12BV\*3P-KMEN-R #

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

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

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.

Mathematics III An introductory course in ordinary differential equation and infinite series. Z,ZK

2321039 Materials Science II. Z,ZK 4
Fundamentals of metallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and thermo-mechanical processing,

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.

2331068 Technology I. Z,ZK 5
Foundry properties of metals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of forming processes. Semi-products,

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

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 9

The role of the block: PV

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

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

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

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

Credits in the group: 2 Note on the group:

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

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

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

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

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

to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.

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:

|         | 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

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
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 tas | 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 Note on the group:

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

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

| 202A041                    | Physics I.  | ZK                | 3                   |  |  |  |  |  |
|----------------------------|---|-------------------|---------------------|--|--|--|--|--|
| Kinematics and dynamic     | es of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic   | properties of boo | lies. Oscillations, |  |  |  |  |  |
| waves. Fluid mechanics     | waves. Fluid mechanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Conductors, semiconductors,      |                   |                     |  |  |  |  |  |
| insulators. Magnetic field | insulators. Magnetic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect measurements, regression, |                   |                     |  |  |  |  |  |
| measurements of 11 va      | rious experiments related to the lectures.  |                   |                     |  |  |  |  |  |

| measurements of 11 va      | rious experiments related to the lectures.   |    |   |
|----------------------------|--|----|---|
| 201A021                    | Constructive Geometry A  | ZK | 3 |
| The subject is focused of  | on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations. |    |   |
| 201A056                    | Mathematics I.A  | ZK | 4 |
| Introduction to linear alg | pebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable         |    |   |

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. 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:

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

|         | (=) . , p  | ,          |         |       |          |      |
|---------|--|------------|---------|-------|----------|------|
| Code    | Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members)  Tutors, authors and guarantors (gar.) | Completion | Credits | Scope | Semester | Role |
| 2026016 | Physics - Seminar  | Z          | 2       | 0P+2C | 1        | V    |
| 2016007 | Mathematics I Seminar Radka Keslerová, 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 meant for high-school students for repetition of high-school physics. |                       |   |   |  |  |
| 2016007   | Mathematics I Seminar | Z | 2 |  |  |

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

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

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

Credits in the group: 0

| Note on the | <del>- '</del>  | _          | 1       | 1     | 1 1      |      |
|-------------|---|------------|---------|-------|----------|------|
| Code        | Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members)  Tutors, authors and guarantors (gar.)  | Completion | Credits | Scope | Semester | Role |
| 2046155     | English Conversation Ilona Šimice, Michele Le Blanc Ilona Šimice Michele Le Blanc (Gar.)  | Z          | 2       | 0P+2C | *        | V    |
| 2046156     | English Conversation Ilona Šimice, Michele Le Blanc   | Z          | 2       | 0P+2C | L        | V    |
| 2046071     | English - Lower Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová  | Z          | 2       | 0P+2C | L        | V    |
| 2046070     | English - Lower Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)                | Z          | 2       | 0P+2C | Z        | V    |
| 2046074     | English - Advanced Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová, Michele Le Blanc <b>Michaela Schusová</b> 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<br>Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová<br>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        | ٧    |

| 2046118 | Czech -Advanced  |      | 2  | 0P+2C | L | V |
|---------|--|------|--|-------|---|---|
| 2046117 | Jaroslava Kommová  Czech -Advanced   | <br> | 2  | 0P+2C | Z | V |
|         | Jaroslava Kommová  Czech - Upper Intermediate  |      |  |       |   | V |
| 2046127 | 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<br>Michaela Schusová, Dušana Jirovská <b>Dušana Jirovská</b> Dušana Jirovská<br>(Gar.)   | Z    | 2  | 0P+2C | L | V |
| 2046090 | French - Advanced<br>Michaela Schusová, Dušana Jirovská, Eliška Vítková Eliška Vítková Eliška<br>Vítková (Gar.)                                  | Z    | 2  | 0P+2C | Z | V |
| 2046089 | French - Upper Intermediate Michaela Schusová, Dušana Jirovská Dušana Jirovská (Gar.)  | Z    | 2  | 0P+2C | L | V |
| 2046088 | French - Upper Intermediate Michaela Schusová, Dušana Jirovská Michaela Schusová (Gar.)  Michaela Schusová (Gar.)                                | Z    | 2  | 0P+2C | Z | V |
| 2046084 | French - Beginners Michaela Schusová, Dušana Jirovská Michaela Schusová (Gar.)  Michaela Schusová (Gar.)   | Z    | 2  | 0P+2C | Z | V |
| 2046085 | French - Beginners´ Course<br>Michaela Schusová, Dušana Jirovská Michaela Schusová Dušana Jirovská<br>(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 <b>Michaela</b> 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<br>Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich <b>Michaela</b><br>Schusová Petr Laurich (Gar.)         | Z    | 2  | 0P+2C | Z | V |
| 2046077 | German - Beginners<br>Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška<br>Vítková Jaroslava Kommová (Gar.)              | Z    | 2  | 0P+2C | L | V |
| 2046161 | Presentations in English Michaela Schusová   | Z    | 2  | 0P+2C | * | V |
| 2046166 | Presentations in Czech Jaroslava Kommová   | Z    | 2  | 0P+2C | * | V |
| 2046162 | Presentations in German  Jaroslava Kommová, Eliška Vítková, Petr Laurich <b>Jaroslava Kommová</b> Jaroslava Kommová (Gar.)                       | Z    | 2  | 0P+2C | * | V |
| 2046164 | Presentations in Russian Dušana Jirovská   | Z    | 2  | 0P+2C | * | V |
|         |  |      | <del>                                     </del> | +     |   |   |
| 2046163 | Presentations in French language  Dušana Jirovská Dušana Jirovská  | Z    | 2  | 0P+2C | * | V |

| 2046137 | Russian - Lower Intermediate Course Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.) | Z | 2 | 0P+2C | Z | V |
|---------|---|---|---|-------|---|---|
| 2046138 | Russian - Lower Intermediate Course Michaela Schusová, Hana Volejníková, Dušana Jirovská Dušana Jirovská  | Z | 2 | 0P+2C | L | V |
| 2046141 | Russian - Advanced Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)                  | Z | 2 | 0P+2C | Z | V |
| 2046142 | Russian - Advanced<br>Michaela Schusová, Hana Volejníková, Dušana Jirovská <b>Dušana Jirovská</b>   | Z | 2 | 0P+2C | L | V |
| 2046140 | Russian - Upper Intermediate<br>Michaela Schusová, Hana Volejníková, Dušana Jirovská <b>Dušana Jirovská</b>   | Z | 2 | 0P+2C | L | V |
| 2046139 | Russian - Upper Intermediate<br>Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková<br>Michaela Schusová Michaela Schusová (Gar.)  | Z | 2 | 0P+2C | Z | V |
| 2046136 | Russian - Beginners<br>Michaela Schusová, Hana Volejníková, Dušana Jirovská <b>Dušana Jirovská</b>  | Z | 2 | 0P+2C | L | ٧ |
| 2046135 | Russian - Beginners<br>Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková<br><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<br>Michaela Schusová, Eliška Vítková, Jaime Andrés Villagómez Eliška Vítková<br>Eliška Vítková (Gar.)                           | Z | 2 | 0P+2C | Z | V |
| 2046097 | <b>Spanish - Beginners</b> Michaela Schusová, Jaime Andrés Villagómez <b>Jaime Andrés Villagómez</b> 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                    |
|--|-------------------------|----------------------|
| mproving communicative skills in speaking on general topics and general technical topics.  | 1                       |                      |
| 2046156 English Conversation   | Z                       | 2                    |
| mproving communicative skills in speaking on general topics and general technical topics.  | 1                       | 1                    |
| 2046071 English - Lower Intermediate   | Z                       | 2                    |
| Mapped to the Common European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations when the Common European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations when the Common European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations when the Common European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations when the Common European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations when the Common European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations when the Common European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations when the Common European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations when the Common European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations when the Common European Framework of Reference Level A2 Aim: Understanding Common European Framework of Reference Level A2 Aim: Understanding Common European Framework of Reference Level A2 Aim: Understanding Common European Framework of Reference A2 Aim: Understanding Common European Framework O2 Aim: Understanding Common European Framework O2 Aim: Under | hich a student meets    | either at school     |
| or at his/her free time and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improve   | vement of profession    | al language.         |
| 2046070 English - Lower Intermediate   | Z                       | 2                    |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about   | them. Writing in a s    | imple way about      |
| amiliar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.  |                         |                      |
| 2046074 English - Advanced   | Z                       | 2                    |
| rhe aim: comprehension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. V   | Written and oral skill  | s on advanced        |
| evel. Ability to write a summary, a report, an essay reading and comprehension of popular-scientific and scientific articles or texts from student   | s field of studies with | out difficulties.    |
| Grammar structures on advanced level. B1 - B2.   |                         |                      |
| 2046075 English - Advanced   | Z                       | 2                    |
| Mapped to the Common European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given   | in English without g    | reat 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 com   | prehension of popul     | ar-scientific and    |
| scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.   |                         |                      |
| 2046072 English - Upper Intermediate   | Z                       | 2                    |
| The aim is to extend language skills taking into consideration professional English and common professional terminology. Comprehension of stand  | dard English speech     | and conversation     |
| about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1.  |                         |                      |
| 2046073 English - Upper Intermediate   | Z                       | 2                    |
| Mapped to the Common European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional   | l English and commo     | n professional       |
| erminology. Comprehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on int   | termediate level. Bro   | adening gramma       |
| knowledge.   |                         |                      |
| 2046068 English - Beginners  | Z                       | 2                    |
| Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminolog   | y (professional langu   | iage). A1            |
| 2046069 English - Beginners  | Z                       | 2                    |
| Mapped to the Common European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Unders  | standing and use of I   | oasic expressions    |
| of general scientific terminology (professional language).   |                         |                      |
| 2046126 Czech Lower Intermediate   | Z                       | 2                    |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about   | t them. Writing in a s  | mple way about       |
| amiliar topics. Reading and comprehension of simple texts. Improvement of professional language.   |                         |                      |
| 2046125 Czech Lower Intermediate   | Z                       | 2                    |
| Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about   | them. Writing in a s    | mple way about       |
| amiliar topics. Reading and comprehension of simple texts. Improvement of professional language.   |                         |                      |
|  |                         |                      |
| 2046118 Czech -Advanced  | Z                       | 2                    |
|  | _                       | 1                    |
| 2046118 Czech -Advanced  | in Czech without gre    | eat difficulties and |

| 2046117  | Czech -Advanced  | Z                                     | 2                   |
|--|--|---------------------------------------|---------------------|
|  | en language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation is   | · · · · · · · · · · · · · · · · · · · | essing opinions     |
| 2046127  | write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical Czech - Upper Intermediate  | Z Z                                   | 2                   |
|  | l speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ab  | - 1                                   |                     |
| <del>-</del>                                     | 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 professions  |                                       | -                   |
| terminology. Comprene<br>knowledge technical lai | nsion of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on inte  | ermediate level. Broa                 | adening the         |
| 2046119  | Czech Language for Beginners I.  | 7                                     | 2                   |
|  | ryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profe   | essional language)                    |                     |
| 2046120  | Czech Language for Beginners II.   | Z                                     | 2                   |
|  | European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understa   | nding and use of ba                   | sic expression      |
| or general scientific teri<br>2046086            | ninology (professional language).  French - Lower Intermediate Course  | 7                                     | 2                   |
|  | FIGHICH - LOWER INTERTHEUTATE COURSE<br>/hat is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. W  | │       ∠                             | _                   |
|  | nprehension of simple texts. Improvement of professional language.   | 3                                     | ,                   |
| 2046087  | French - Lower Intermediate Course   | Z                                     | 2                   |
|  | Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which   |                                       |                     |
| -  | eaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement   | t of professional lan                 |                     |
| 2046091<br>Manned to the level of t              | French - Advanced<br>Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on t   | onics familiar to the                 | 2<br>student        |
| • •  | tive speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a   | •                                     |                     |
|  | ular scientific and technical articles.  |                                       |                     |
| 2046090  | French - Advanced  | Z                                     | 2                   |
|  | en language as well as lectures in French on topics familiar to the student. Communication with native speakers, participati   |                                       | xpressing           |
| 2046089  | Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and the French - Upper Intermediate  | 7                                     | 2                   |
|  | Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students  | - 1                                   | _                   |
| * *  | king about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and unders  |                                       |                     |
| 2046088  | French - Upper Intermediate  | Z                                     | 2                   |
| <del>-</del>                                     | d speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ab  | ility to describe expe                | eriences and        |
| events, briefly explain o                        | ne's opinions and plans. Reading and understanding general and technical texts.  | 7                                     | 2                   |
|  | French - Beginners<br>hat is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. W   | ∠        <br>/riting in a simple wa   |                     |
|  | nprehension of simple texts. Improvement of professional language.   | 3                                     | ,                   |
| 2046085  | French - Beginners' Course   | Z                                     | 2                   |
|  | Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which   |                                       |                     |
| nis/ner free time and sp<br>2146060              | eaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement   | or professional lang                  | guage.<br>2         |
|  | Indonesian Language Course for Exchange  nguage for Student Exchange Program to Indonesia  | 2                                     | 2                   |
| 2146061  | Technical Indonesian - Course I.   | Z                                     | 2                   |
| Second part of Indones                           | ian Language for Student Exchange Program to Indonesia   | 1                                     |                     |
| 2144062  | Technical Indonesian - Course II.  | Z,ZK                                  | 3                   |
|  | nguage for Student Exchange Program to Indonesia   |                                       |                     |
| 2046078<br>Aim: Understanding cle                | German - Lower Intermediate Course  arly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking al   | Z   Z                                 | 2<br>n a simple way |
| <del>-</del>                                     | eading and comprehension of simple texts. Improvement of professional language.  | boat them. whiting if                 | i a simple way      |
| 2046079  | German - Lower Intermediate Course   | Z                                     | 2                   |
|  | Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations wh  |                                       |                     |
|  | nd speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvem  | ent of professional I                 |                     |
| 2046083  | German - Advanced Course   | Z                                     | 2                   |
|  | Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given<br>in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comp |                                       |                     |
|  | s from student's field of studies without difficulties. Grammar structures on advanced level.  | ronononon or popula                   |                     |
| 2046082  | German - Advanced Course   | Z                                     | 2                   |
|  | en language as well as lectures in German on topics familiar to the student. Communication with native speakers, participation   |                                       | Expressing          |
| -  | Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and  |                                       |                     |
| 2046081<br>Manned to the level of t              | German - Upper Intermediate Course Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students   | Z                                     | 2<br>urk at school  |
|  | king about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and unders  |                                       |                     |
| 2046080  | German - Upper Intermediate Course   | Z                                     | 2                   |
| =  | speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ab  | ility to describe expe                | eriences and        |
|  | ne's opinions and plans. Reading and understanding general and technical texts.  |                                       |                     |
| 2046076  | German - Beginners   | Z Z                                   | 2                   |
| Donie wee-built (                                | ryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profe   | ssionai ianguage) It                  | corresponds t       |
| · · · · · · · · · · · · · · · · · · ·            | Framework of Reference for Landuages A1.   |                                       |                     |
| the Common European                              | Framework of Reference for Languages A1.  German - Beginners   | Z                                     | 2                   |
| he Common European<br>2046077                    | German - Beginners mmon European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding   |                                       | 2<br>expressions of |

| reparing students to present in English on technical topics, with a possible co-operation with specialized departments.  046162 Presentations in English on technical topics, with a possible co-operation with specialized departments.  046164 Presentations in Regilsh on technical topics, with a possible co-operation with specialized departments.  046164 Presentations in Russian possibly in cooperation with specialized departments.  046164 Presentations in Russian possibly in cooperation with specialized departments.  046163 Presentations in French language expanding technical topics in Present, possibly in cooperation with specialized departments.  046165 Presentations in French language reparation for presenting technical topics in Present, possibly in cooperation with specialized departments.  046165 Presentations in Spanish Presentat |                         |   |  |                         |
|--|-------------------------|---|--|-------------------------|
| 046166   Presentations in Czech repairing students to give presentations in English on technical topics, with a possible co-operation with specialized departments.  046162   Presentations in German possibly in cooperation with specialized departments.  046164   Presentations in German possibly in cooperation with specialized departments.  046165   Presentations in Russian   Presentations in Functions in Functions   Russian   Presentations in French   Inaquage   Z   2   2   Reparation for presenting technical topics in Function   Inaquage   Z   2   2   Reparation for presenting technical topics in Funch, possibly in cooperation with specialized departments.  046165   Presentations in Spanish   C   2   2   Reparation for presenting technical topics in Spanish   possibly in cooperation with specialized departments.  046137   Russian - Lower Intermediate Course   C   2   2   Reparation for presenting technical topics in Spanish   possibly in cooperation with specialized departments.  046138   Russian - Lower Intermediate Course   C   2   2   Reparation   Russian - Lower Intermediate Course   C   2   2   2   Reparation   Russian - Lower Intermediate Course   2   2   2   2   Reparation   Russian - Advanced   2   2   2   2   Reparation   Russian - Russian - Russian   Russi | 2046161                 |   | Z  | 2                       |
| reparing students to give presentations in English on technical topics, with a possible co-operation with specialized departments.    Validate   Presentations in German   Validate   Valid |                         | present in English on technical topics, with a possible co-operation with specialized departments.                          |  | ,                       |
| 046162 Presentations in German  Oparation for presenting technical topics in German, possibly in cooperation with specialized departments.  Z 2  reparation for presenting technical topics in Russian, possibly in cooperation with specialized departments.  Od46163 Presentations in French language  Presentations in French language  Presentation for presenting technical topics in Russian, possibly in cooperation with specialized departments.  Od46165 Presentations in Spanish, possibly in cooperation with specialized departments.  Od46167 Russian - Lower Interrmediate Course  destanding and comprehension of simple texts. Improvement of professional language.  Od46137 Russian - Lower Interrmediate Course  destanding and comprehension of simple texts. Improvement of professional language.  Od46138 Russian - Lower Interrmediate Course  destanding and comprehension of simple texts. Improvement of professional language.  Od46138 Russian - Lower Interrmediate Course  destanding and comprehension of simple texts. Improvement of professional language.  Od46138 Russian - Advanced  Russian - Advanced Russian - Lower Interrmediate Course  destanding about them. Writing in a simple way about familiar topics. Reading and comprehension of spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation in discussions. Expressing pinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical articles.  Od46140 Russian - Advanced  Russian - Movanced  Russian - Upper Intermediate  Od46140 Russian - Upper Intermediate  Od46140 Russian - Upper Intermediate  Od46140 Russian - Buspea Russian on topics familiar to the student. Communication with native speakers, participation in discussions. Expressing opinions. Written skills, Ability to write an essay or a report. Reading and understanding texts concernment susses and popular scientific and technical articles.  Od46140 Russia | 2046166                 |   | Z  | 2                       |
| reparation for presenting technical topics in German, possibly in cooperation with specialized departments.    2   2   2   2   2   2   2   2   2   | Preparing students to   | give presentations in English on technical topics, with a possible co-operation with specialized departments.               |  |                         |
| Q46164   Presentations in Russian   Z   2   2   2   2   2   2   2   3   3   3  | 2046162                 | Presentations in German   | Z  | 2                       |
| reparation for presenting technical topics in Russian, possibly in cooperation with specialized departments.    Validadia   Presentations in French   possibly in cooperation with specialized departments.  | Preparation for present | ting technical topics in German, possibly in cooperation with specialized departments.                                      | <u>.</u>   |                         |
| Presentations in French language reparation by presenting technical topics in French, possibly in cooperation with specialized departments.    Presentations in Spanish   Z   2  | 2046164                 | Presentations in Russian  | Z  | 2                       |
| reparation for presenting technical topics in French, possibly in cooperation with specialized departments.    Validation   Presentations in Spanish   Presentations   Validation   Va |                         | ting technical topics in Russian, possibly in cooperation with specialized departments.                                     |  |                         |
| Presentations in Spanish reparation for presenting technical topics in Spanish, possibly in cooperation with specialized departments.  Q 2 046137 Russian - Lower Intermediate Course destraiding 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 familipies. Reading and comprehension of simple texts. Improvement of professional language.  Q 5 138 Russian - Lower Intermediate Course appeal to the level of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a student meets at school or in his/he et time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  Q 61141 Russian - Advanced understanding learny what is spoken about everyday situations which a student meets at school or in his/he et time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  Q 61414 Russian - Advanced Lapped to the level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning current issues and popular scientific and technical articles.  Q 6 142 Russian - Advanced Lapped to the level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts in the student in the level of Common European Framework of reference: B2 - B1 Understanding standard spee | 2046163                 | Presentations in French language  | Z  | 2                       |
| reparation for presenting technical topics in Spanish, possibly in cooperation with specialized departments.    Valuation   Va | Preparation for present | ting technical topics in French, possibly in cooperation with specialized departments.                                      |  |                         |
| O46137   Russian - Lower Intermediate Course  oderstanding 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 familipies. Reading and comprehension of simple texts. Improvement of professional language.  046138   Russian - Lower Intermediate Course lapped to the level of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a student meets at school or in his/lee time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  046141   Russian - Advanced of spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation in discussions. Expressing pinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical articles.  046142   Russian - Advanced   Z   2   2   2   2   2   2   2   2   2  | 2046165                 | Presentations in Spanish  | Z  | 2                       |
| inderstanding 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 familytics. Reading and comprehension of simple texts. Improvement of professional language.  046138 Russian - Lower Intermediate Course lapped to the level of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a student meets at school or in his/lee te time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  046141 Russian - Advanced Omprehension of spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation in discussions. Expressing pinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical articles.  046142 Russian - Advanced Russian - Advanced Russian - Upper Intermediate Russian - Beginners Reading and understanding general and technical texts.  046136 Russian - Beginners Reading and understanding general and technical texts.  046137 Russian - Upper Intermediate Russian - Reading and understanding general and technical texts.  046138 Russian - Beginners Reading and understanding general and technical texts.  046139 Russian - Beginners Reading and understanding general and technical texts.  046136 Russian - Beginners Reading and understanding general and technical texts.  046138 Russian - Beginners Reading and understanding general and technical texts.  046139 Russian - Beginners Reading and comprehension of spoken about t | Preparation for present | ting technical topics in Spanish, possibly in cooperation with specialized departments.                                     |  |                         |
| pics. Reading and comprehension of simple texts. Improvement of professional language.  046138   | 2046137                 | Russian - Lower Intermediate Course   | Z  | 2                       |
| Russian - Lower Intermediate Course apped to the level of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a student meets at school or in his/e et time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  4. 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3   |                         | uhat is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. W | riting in a simple w                               | ı<br>ay about familiaı  |
| apped to the level of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a student meets at school or in his/see time and speaking about them. Writing in a simple way about familiar ropics. Reading and comprehension of simple texts. Improvement of professional language.  4   | topics. Reading and co  | emprehension of simple texts. Improvement of professional language.   |  |                         |
| lapped to the level of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a student meets at school or in his/le et time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  4  | 2046138                 | Russian - Lower Intermediate Course   | Z  | 2                       |
| ee time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  046141 Russian - Advanced  Z 2  20  20  20  20  20  20  20  20  20   |                         |   | udent meets at sc                                  | ı<br>hool or in his/her |
| comprehension of spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation in discussions. Expressing pinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical articles.  Valapsed to the level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on topics familiar to the student. communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concernurant issues and popular scientific and technical articles.  O46140 Russian - Upper Intermediate  Z 2 2 Lapped to the level of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student meets at work, at school, during ee time, and talking about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding general and technical teo 046139 Russian - Upper Intermediate  O46139 Russian - Upper Intermediate  O46136 Russian - Beginners  I 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2  |                         |   |  |                         |
| comprehension of spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation in discussions. Expressing pinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical articles.  Valapsed to the level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on topics familiar to the student. communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concernurant issues and popular scientific and technical articles.  O46140 Russian - Upper Intermediate  Z 2 2 Lapped to the level of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student meets at work, at school, during ee time, and talking about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding general and technical teo 046139 Russian - Upper Intermediate  O46139 Russian - Upper Intermediate  O46136 Russian - Beginners  I 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2  | 2046141                 | Russian - Advanced  | Z  | 2                       |
| O46142 Russian - Advanced Russian - Beginners  O46148 Russian - Russian - Beginners  O46149 Russian - Russian - Russian - Russian - Beginners  O46149 Russian - Russian - Russian - Beginners  O46149 Russian - Beginners  O46140 Russian - Upper Intermediate  O46140 Russian - Beginners  O46040 Russian - |                         |   | tion in discussions                                | I                       |
| lapped to the level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on lopics familiar to the student. ommunication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concernument issues and popular scientific and technical articles.  046140 Russian - Upper Intermediate  1 2 2  1 2 2  1 3 2 2  1 3 2 3 2  1 3 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3  |                         |   |  |                         |
| lapped to the level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on lopics familiar to the student. ommunication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concernument issues and popular scientific and technical articles.  046140 Russian - Upper Intermediate  1 2 2  1 2 2  1 3 2 2  1 3 2 3 2  1 3 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3  | 2046142                 | Russian - Advanced  | 7  | 2                       |
| ommunication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concern urrant issues and popular scientific and technical articles.    Russian - Upper Intermediate   Z   2     Iapped to the level of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student meets at work, at school, during ee time, and talking about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding general and technical text.    Value  |                         |   | topics familiar to th                              | 1                       |
| Russian - Upper Intermediate    Apped to the level of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student meets at work, at school, during ee time, and talking about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding general and technical texto describe experiences and events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.    Appear   Intermediate   Z   2   2   2   2   2   2   2   2   2   |                         |   | -  |                         |
| lapped to the level of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student meets at work, at school, during ee time, and talking about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding general and technical text.    Variable   Russian - Upper Intermediate   Z   2   2   2   2   2   2   2   2   2  | currant issues and pop  | oular scientific and technical articles.  |  |                         |
| lapped to the level of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student meets at work, at school, during ee time, and talking about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding general and technical text.    Variable   Russian - Upper Intermediate   Z   2   2   2   2   2   2   2   2   2  | 2046140                 | Russian - Upper Intermediate  | Z  | 2                       |
| Russian - Upper Intermediate  O46139 Russian - Upper Intermediate  O46136 Russian - Beginners  O46135 Russian - Beginners  O46135 Russian - Beginners  O46135 Russian - Beginners  O46136 Russian - Beginners  O46135 Russian - Beginners  O46135 Russian - Beginners  O46135 Russian - Beginners  O46135 Russian - Beginners  O46136 Russian - Beginners  O46137 Russian - Beginners  O46138 Russian - Beginners  O46138 Russian - Beginners  O46139 Russian - Beginners  O46099 Spanish - Lower Intermediate  O46099 Spanish - Lower Intermediate  O46099 Spanish - Lower Intermediate  O46098 Spanish - Beginners  O46098 S |                         | · ·   | meets at work, at s                                | school, during          |
| Inderstanding standard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to describe experiences and vents, briefly explain one's opinions and plans. Reading and understanding general and technical texts.    Q46136  |                         |   |  | -                       |
| Inderstanding standard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to describe experiences and vents, briefly explain one's opinions and plans. Reading and understanding general and technical texts.    Q46136  | 2046139                 | Russian - Upper Intermediate  | Z  | 2                       |
| vents, briefly explain one's opinions and plans. Reading and understanding general and technical texts.    Outsign - Beginners   Z   2   |                         | · · · · · · · · · · · · · · · · · · ·   | lity to describe exp                               | eriences and            |
| lapped to the level of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understanding and use of basic expression of general scientific terminology (professional language)  O46135 Russian - Beginners asic vocabulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professional language)  O46099 Spanish - Lower Intermediate Z 2  lapped to the level of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a student meets at school or in his/heet time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  O46098 Spanish - Lower Intermediate Z 2  anderstanding 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 familypics. Reading and comprehension of simple texts. Improvement of professional language.  O46096 Spanish - Beginners  T 2  a 2  im:Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about milliar topics. Reading and comprehension of simple texts. Improvement of professional language.   | _                       |   |  |                         |
| lapped to the level of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understanding and use of basic expression of general scientific terminology (professional language)  O46135 Russian - Beginners asic vocabulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professional language)  O46099 Spanish - Lower Intermediate Z 2  lapped to the level of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a student meets at school or in his/heet time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  O46098 Spanish - Lower Intermediate Z 2  anderstanding 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 familypics. Reading and comprehension of simple texts. Improvement of professional language.  O46096 Spanish - Beginners  T 2  a 2  im:Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about milliar topics. Reading and comprehension of simple texts. Improvement of professional language.   | 2046136                 | Russian - Beginners   | Z  | 2                       |
| general scientific terminology (professional language)  046135 Russian - Beginners asic vocabulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professional language)  046099 Spanish - Lower Intermediate lapped to the level of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a student meets at school or in his/reference and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  046098 Spanish - Lower Intermediate Z 2  anderstanding 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 familypics. Reading and comprehension of simple texts. Improvement of professional language.  046096 Spanish - Beginners Z 2  im:Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about miliar topics. Reading and comprehension of simple texts. Improvement of professional language.  |                         |   | ling and use of bas                                | sic expressions         |
| asic vocabulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professional language)  O46099   Spanish - Lower Intermediate   Z   2  lapped to the level of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a student meets at school or in his/he et time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  O46098   Spanish - Lower Intermediate   Z   2  Inderstanding 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 family picts. Reading and comprehension of simple texts. Improvement of professional language.  O46096   Spanish - Beginners   Z   2  im:Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about miliar topics. Reading and comprehension of simple texts. Improvement of professional language.   |                         |   | · ·  | ·                       |
| asic vocabulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professional language)  O46099   Spanish - Lower Intermediate   Z   2  lapped to the level of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a student meets at school or in his/he et time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  O46098   Spanish - Lower Intermediate   Z   2  Inderstanding 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 family picts. Reading and comprehension of simple texts. Improvement of professional language.  O46096   Spanish - Beginners   Z   2  im:Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about miliar topics. Reading and comprehension of simple texts. Improvement of professional language.   | 2046135                 | Russian - Beginners   | 7  | 2                       |
| Spanish - Lower Intermediate    Appeal to the level of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a student meets at school or in 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.    Appeal   |                         |   | _  | _                       |
| lapped to the level of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a student meets at school or in his/hee time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  O46098   Spanish - Lower Intermediate   Z   2   Inderstanding 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 family pics. Reading and comprehension of simple texts. Improvement of professional language.  O46096   Spanish - Beginners   Z   2   Im: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about miliar topics. Reading and comprehension of simple texts. Improvement of professional language.   |                         |   |  | 2                       |
| ee time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.    O46098   |                         |   | _  |                         |
| Spanish - Lower Intermediate  Inderstanding 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 family apics. Reading and comprehension of simple texts. Improvement of professional language.  Spanish - Beginners  Spanish - Beginners  Inderstanding 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 milliar topics. Reading and comprehension of simple texts. Improvement of professional language.   |                         |   |  |                         |
| nderstanding 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 familypics. Reading and comprehension of simple texts. Improvement of professional language.  046096   Spanish - Beginners   Z   2   im:Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about imiliar topics. Reading and comprehension of simple texts. Improvement of professional language.  |                         |   | <del>,                                      </del> | 2                       |
| pics. Reading and comprehension of simple texts. Improvement of professional language.  046096   Spanish - Beginners   Z   2   im:Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about imiliar topics. Reading and comprehension of simple texts. Improvement of professional language.   |                         | 1-1   | _  | I                       |
| 046096 Spanish - Beginners Z 2 im:Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about miliar topics. Reading and comprehension of simple texts. Improvement of professional language.  |                         |   |  | -,                      |
| im:Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way aboumiliar topics. Reading and comprehension of simple texts. Improvement of professional language.   |                         |   | 7  | 2                       |
| miliar topics. Reading and comprehension of simple texts. Improvement of professional language.  |                         |   |  |                         |
|  |                         |   |  | ,, accar                |
| 1/4619/ Spanish - Reginners  | 2046097                 | Spanish - Beginners   | Z  | 2                       |
| lapped to the Common European Framework of Reference Level A1. Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in   |                         |   |  |                         |
| is/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  |                         |   |  |                         |

# List of courses of this pass:

| Code                   | Name of the course   | Completion          | Credits      |
|------------------------|--|---------------------|--------------|
| 2011009                | Mathematics III  | Z,ZK                | 5            |
|                        | An introductory course in ordinary differential equation and infinite series.  |                     | ı            |
| 2011021                | Constructive Geometry  | Z,ZK                | 6            |
|                        | The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relation                | ons.                |              |
| 2011056                | Mathematics I  | Z,ZK                | 8            |
| In the course, great   | ter emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connection          | is between concep   | ts. Students |
| will also get to know  | rthe procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: e       | igennumbers and e   | eigenvectors |
|                        | of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.   |                     |              |
| 2011062                | Matematika II.   | Z,ZK                | 8            |
| •                      | set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Different  |                     | υ,           |
| and curl (rotation). F | Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, | Fubini theorem. Tra | insformation |

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                       |
|--|---|---|-------------------------|
| 2016007  | Mathematics I Seminar   | Z   | 2                       |
| 201A021  | Constructive Geometry A   | ZK  | 3                       |
| 20171021   | The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relation   |   | 5                       |
| 201A056  | Mathematics I.A   | ZK  | 4                       |
|  | Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable   |   |                         |
| 201A062  | Mathematics II.A  | ZK  | 4                       |
|  | et, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differenti   |   | divergence              |
| -  | unction given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, in  |   | _                       |
| f integrals to polar,                            | cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green   | ı's theorem. A pot                              | ential vect             |
| field, independence                              | e of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vecto  | r field through a s                             | urface. Th              |
|  | Gauss-Ostrogradskij theorem.  |   |                         |
| 2021025  | Physics II.   | Z,ZK  | 4                       |
| araday's law of elec                             | tromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of elec   | tromagnetic wave                                | s. Interacti            |
| of radiation with ma                             | atter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and   | periodic system o                               | of element              |
| pectra, x-rays, ;lase                            | er. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 exper  | iments related to                               | the lecture             |
| 2021041  | Physics I.  | Z,ZK  | 7                       |
| nematics and dyna                                | amics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic pro  | perties of bodies.                              | Oscillation             |
| waves. Fluid med                                 | chanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co  | nductors, semicor                               | nductors,               |
| sulators. Magnetic                               | field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect  | ot measurements,                                | , regressio             |
|  | 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                       |
| -  | amics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic pro  | •   |                         |
| waves. Fluid med                                 | chanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co  | nductors, semicor                               | nductors,               |
| sulators. Magnetic                               | field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirec   | ot measurements,                                | , regressio             |
|  | measurements of 11 various experiments related to the lectures.   |   |                         |
| 2041061  | English-Bachelor Exam   | Z,ZK  | 2                       |
| apped to the Comn                                | non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult  | ies, to take part in                            | discussio               |
|  | 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                       |
| lapped to the Comn                               | non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult  | ies, to take part in                            | discussion              |
|  | 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                       |
| lapped to the Comn                               | non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult  | ies, to take part in                            | discussion              |
|  | to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.  |   |                         |
| 2041064  | Spanish - Bachelor Exam / FME   | Z,ZK  | 2                       |
| lapped to the Comn                               | non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult  | ies, to take part in                            | discussion              |
|  | to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.  |   | ,                       |
| 2041065  | Russian - Bachelor Exam / FME   | Z,ZK  | 2                       |
| lapped to the Comn                               | non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult  | ies, to take part in                            | discussion              |
|  | to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.  |   | ,                       |
| 2046068  | English - Beginners   | Z   | 2                       |
| Aim: Basic vocal                                 | bulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (p   | rofessional langu                               | age). A1                |
| 2046069  | English - Beginners   | Z   | 2                       |
| lapped to the Comr                               | non European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding   | and use of basic                                | expressio               |
|  | of general scientific terminology (professional language).  |   |                         |
| 2046070  | English - Lower Intermediate  | Z   | 2                       |
| im: Understanding                                | clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.   | Writing in a simple                             | e way abo               |
|  | familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.  |   |                         |
| 2046071  | English - Lower Intermediate  | Z   | 2                       |
| Napped to the Com                                | mon European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which a s   | tudent meets eith                               | er at scho              |
| or at his/her free to                            | ime and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improvement  | nt of professional                              | language.               |
| 2046072  | English - Upper Intermediate  | Z   | 2                       |
| he aim is to extend                              | language skills taking into consideration professional English and common professional terminology. Comprehension of standard English and common professional terminology.  | glish speech and                                | conversati              |
|  | about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 -   | B1.   |                         |
| 2046073  | English - Upper Intermediate  | Z   | 2                       |
|  | nmon European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional Englis   | sh and common p                                 | rofessiona              |
| Mapped to the Con                                | chension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermedia  | ate level. Broaden                              | ing gramm               |
|  | knowledge.  |   |                         |
|  | Kilowieuge.   |   |                         |
|  | English - Advanced  | Z   | 2                       |
| erminology. Compre                               |   |   | II .                    |
| 2046074 The aim: comprehe                        | English - Advanced  | n and oral skills or                            | advance                 |
| rminology. Compre                                | English - Advanced ension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Writter   | n and oral skills or                            | n advance               |
| 2046074 The aim: comprehe                        | English - Advanced ension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Writter a summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's field  | n and oral skills or                            | advance                 |
| 2046074 The aim: comprehelevel. Ability to write | English - Advanced ension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Writter e a summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's field Grammar structures on advanced level. B1 - B2. | n and oral skills or<br>of studies without<br>Z | advance<br>difficulties |

| 2046076 Basic vocabulary o   | German - Beginners<br>f everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professior  | Z<br>nal language) It cor | responds to      |
|------------------------------|---|---------------------------|------------------|
| _                            | the Common European Framework of Reference for Languages A1.  |                           |                  |
| 2046077<br>Mapped to the lev | German - Beginners el Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding an general scientific terminology (professional language).  | Z<br>nd use of basic exp  | 2<br>ressions of |
| 2046078                      | German - Lower Intermediate Course  | Z                         | 2                |
|                              | g clearly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking about about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  | _                         |                  |
| 2046079                      | German - Lower Intermediate Course  | Z                         | 2                |
| or in his/her free           | I of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a se time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement   |                           | anguage.         |
| 2046080                      | German - Upper Intermediate Course andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability  | to describe experi        | 2                |
| Officerstationing sta        | events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  | to describe expeni        | ences and        |
| 2046081                      | German - Upper Intermediate Course  | Z                         | 2                |
|                              | rel 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 understandi  | ng general and tec        |                  |
| 2046082                      | German - Advanced Course  | Z                         | 2                |
| · ·                          | of spoken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participatio<br>Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a   |                           | 1                |
| 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 G   | erman without grea        |                  |
|                              | ation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehe  | _                         |                  |
|                              | 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 al        | bout familiar    |
|                              | topics. Reading and comprehension of simple texts. Improvement of professional language.  |                           |                  |
| 2046085                      | French - Beginners´ Course  | Z                         | 2                |
|                              | rel of Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which a   |                           |                  |
|                              | ne and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement   | of professional lan       |                  |
| 2046086                      | French - Lower Intermediate Course  | Z                         | 2                |
| Understanding clea           | arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing  | j in a simple way at      | bout familiar    |
| 2040007                      | topics. Reading and comprehension of simple texts. Improvement of professional language.  | 7                         |                  |
| 2046087                      | French - Lower Intermediate Course rel of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a  |                           | 2                |
|                              | e of Common European Framework of Reference. Az Ann. Orderstanding clearly what is spoken about everyday situations which a<br>ne and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement  |                           |                  |
| 2046088                      | French - Upper Intermediate   | 7                         | 2                |
|                              | andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability   | to describe experi        | . – .            |
| ]                            | events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  |                           |                  |
| 2046089                      | French - Upper Intermediate   | Z                         | 2                |
| Mapped to the lev            | rel of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students com  | nes across at work.       | at school,       |
| during free time, ar         | nd talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understandi  | ng general and tec        | hnical texts.    |
| 2046090                      | French - Advanced   | Z                         | 2                |
|                              | of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participation   |                           |                  |
|                              | Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a   | _                         |                  |
| 2046091                      | French - Advanced   | Z                         | 2                |
|                              | level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on to<br>h native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and u   | -                         |                  |
| Communication wit            | currant issues and popular scientific and technical articles.   | inderstanding 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.   | Writing in a simple       | ' '              |
|                              | familiar topics. Reading and comprehension of simple texts. Improvement of professional language.   |                           |                  |
| 2046097                      | Spanish - Beginners   | Z                         | 2                |
|                              | ommon European Framework of Reference Level A1. Aim: Understanding clearly what is spoken about everyday situations which a s   |                           |                  |
| his/her free tim             | ne and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement   | of professional lan       |                  |
| 2046098                      | Spanish - Lower Intermediate  | 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  | ın a sımple way al        | oout familiar    |
| 2046099                      | topics. Reading and comprehension of simple texts. Improvement of professional language.  Spanish - Lower Intermediate  | Z                         | 2                |
|                              | Spanisn - Lower Intermediate<br>of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a studer  | 1                         |                  |
|                              | nd speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of processing and comprehension of simple texts. Improvement of processing and comprehension of simple texts.   |                           |                  |
| 2046117                      | Czech -Advanced   | Z                         | 2                |
|                              | spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in dis  |                           |                  |
| Writte                       | en skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and t  | 1                         |                  |
| 2046118                      | Czech -Advanced   | Z                         | 2                |
|                              | of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czec  | _                         |                  |
| active participati           | on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehens   | ion of popular-scie       | entific and      |
| 0040440                      | scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  |                           |                  |
| 2046119<br>Basic voca        | Czech Language for Beginners I.<br>abulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p   | Z<br>professional langua  | ae) 2            |
|                              | ,,, graduation of general contribution of general contribution of general contribution to the contribution of general |                           | J-1              |

| 2046120           | Czech Language for Beginners II.   | Z                                     | 2              |
|-------------------|--|---------------------------------------|----------------|
| Mapped to the Co  | mmon European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understandin  | g and use of basic                    | expressions    |
| 0040405           | of general scientific terminology (professional language).   |                                       |                |
| 2046125           | Czech Lower Intermediate   | Z                                     | 2              |
| Aim: Understandi  | ng clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. familiar topics. Reading and comprehension of simple texts. Improvement of professional language.   | writing in a simpi                    | e way about    |
| 2046126           | Czech Lower Intermediate   | Z                                     | 2              |
|                   | ng clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.   | _                                     | 1              |
| 7 am. Ondorotandi | familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  | · · · · · · · · · · · · · · · · · · · | o way about    |
| 2046127           | Czech - Upper Intermediate   | Z                                     | 2              |
|                   | tandard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability   | 1                                     | 1              |
| 3 .               | events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.   |                                       |                |
| 2046128           | Czech - Upper Intermediate   | Z                                     | 2              |
|                   | mmon European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional Ca   | _                                     | _              |
| terminology. Co   | mprehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on intern  | nediate level. Broa                   | dening the     |
|                   | knowledge technical language.  |                                       |                |
| 2046135           | Russian - Beginners  | Z                                     | 2              |
| Basic voo         | cabulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p  | rofessional langua                    | age)           |
| 2046136           | Russian - Beginners  | Z                                     | 2              |
| Mapped to the le  | vel of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understanding  | and use of basic                      | expressions    |
|                   | of general scientific terminology (professional language)  |                                       |                |
| 2046137           | Russian - Lower Intermediate Course  | Z                                     | 2              |
| Understanding cle | early what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing  | g in a simple way a                   | about familiar |
|                   | topics. Reading and comprehension of simple texts. Improvement of professional language.   |                                       |                |
| 2046138           | Russian - Lower Intermediate Course  | Z                                     | 2              |
|                   | el of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a stude  |                                       |                |
|                   | and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of  |                                       | <del>-</del>   |
| 2046139           | Russian - Upper Intermediate   | Z                                     | 2              |
| Understanding s   | tandard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  | to describe exper                     | riences and    |
| 2046140           |  | 7                                     | 2              |
|                   | Russian - Upper Intermediate evel of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student me  | _                                     |                |
|                   | ring about these topics. Ability to describe experiences and events, briefly explain one s opinions and plans. Reading and understandi   |                                       | -              |
| 2046141           | Russian - Advanced   | 7                                     | 2              |
|                   | i of spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participatic  | _                                     |                |
|                   | Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific  |                                       |                |
| 2046142           | Russian - Advanced   | 7                                     | 2              |
|                   | level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to   | ppics familiar to the                 | l l            |
| Communication w   | ith native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and u   | ınderstanding text                    | s concerning   |
|                   | currant issues and popular scientific and technical articles.  |                                       |                |
| 2046155           | English Conversation   | Z                                     | 2              |
|                   | Improving communicative skills in speaking on general topics and general technical topics.   |                                       | <u>'</u>       |
| 2046156           | English Conversation   | Z                                     | 2              |
|                   | Improving communicative skills in speaking on general topics and general technical topics.   |                                       | •              |
| 2046161           | Presentations in English   | Z                                     | 2              |
|                   | Preparing students to present in English on technical topics, with a possible co-operation with specialized departments.   |                                       |                |
| 2046162           | Presentations in German  | Z                                     | 2              |
|                   | Preparation for presenting technical topics in German, possibly in cooperation with specialized departments.   |                                       | ·              |
| 2046163           | Presentations in French language   | Z                                     | 2              |
|                   | Preparation for presenting technical topics in French, possibly in cooperation with specialized departments.   |                                       |                |
| 2046164           | Presentations in Russian   | Z                                     | 2              |
|                   | Preparation for presenting technical topics in Russian, possibly in cooperation with specialized departments.  | ·                                     | ·              |
| 2046165           | Presentations in Spanish   | Z                                     | 2              |
|                   | Preparation for presenting technical topics in Spanish, possibly in cooperation with specialized departments.  |                                       |                |
| 2046166           | Presentations in Czech   | Z                                     | 2              |
|                   | Preparing students to give presentations in English on technical topics, with a possible co-operation with specialized department.   | ents.                                 |                |
| 2131002           | Engineering Design II  | Z,ZK                                  | 4              |
| •                 | GPS (Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface   | -                                     |                |
|                   | ops, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice the   |                                       |                |
| 2141204           | Introduction to Electrical Engineering for Technology  | Z,ZK                                  | 4              |
|                   | trical circuits, analysis of electrical circuits as DC and AC. El. Power and Energy. Principle and typical parameters diodes, transistors, in district principle and typical parameters diodes, transistors, and the district principle and typical parameters diodes, transistors, and the district principle and typical parameters diodes, transistors, and the district principle and transistors, and the district principle and typical parameters diodes, a |                                       | -              |
| Analogue and      | d digital circuits. AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Transformer. Induction machine   | s. Synchronous m                      | achines.       |
| 04.44000          | DC-machines Tachnical Independent Course II  | 7 71/                                 |                |
| 2144062           | Technical Indonesian - Course II.  | Z,ZK                                  | 3              |
| 24.40000          | Basic of Indonesian Language for Student Exchange Program to Indonesia   | 7                                     |                |
| 2146060           | Indonesian Language Course for Exchange  | Z                                     | 2              |
| 04.40004          | Basic of Indonesian Language for Student Exchange Program to Indonesia   | 7                                     |                |
| 2146061           | Technical Indonesian - Course I.   | Z                                     | 2              |
|                   | Second part of Indonesian Language for Student Exchange Program to Indonesia   |                                       |                |

| 2182019  | Chamaintus.  | 1/7  | 1 2 1  |
|--|--|--|--|
|  | Chemistry  | KZ   | 3  |
|  | ry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties  |  |  |
| phase equilibrium  | n, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biocher   | mistry. Laboratory   | practice is  |
|  | oriented upon the material properties measurement.   |  |  |
| 2321039  | Materials Science II.  | Z,ZK   | 4  |
| Fundamentals of m  | netallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and th   | nermo-mechanical   | processing,  |
|  | technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materi  | als.   |  |
| 2321067  | Technical Application of Materials   | Z,ZK   | 5  |
|  | aplikovatelnost jednotlivých skupin inženýrských materiál a jejich odpovídající vlastnosti. Rovn ž se v nuje aktuálním vývojovým treno   |  | -  |
|  | bes applicability of specific engineering material types and their characteristics. It deals with the current development trends in these  |  | The subject  |
|  |  |  |  |
| 2322029  | Materials Science I.   | KZ   | 3  |
| History and prese  | ent state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, defor   | mation, recrystalliz   | zation and   |
| fracture of mate   | erials, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, ir  | on-carbon phase o  | diagram.   |
| 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  |  | KZ   | 2  |
|  | Project  |  |  |
|  | 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   | r evaluate hitherto  | obtained   |
|  | knowledge or results.  |  |  |
| 2331065  | Design Consideration   | Z,ZK   | 5  |
| Relations between  | n design, production technique and economic aspects. Design considerations in casting, forming, welding, machining and assembly t  | echniques. Basis f   | or material  |
|  | and production technology selection. Component detailing for manufacture. CNC basis and using CNC.   |  |  |
| 2224060  |  | 7 71/  | -  |
| 2331068  | Technology I.  | Z,ZK   | 5  |
| Foundry properties   | of metals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of form  |  | mi-products,   |
|  | heating-up. Cutting. Cold and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. Brazing. Surface treatment   |  |  |
| 2331071  | Automation of Production Processes   | Z,ZK   | 5  |
| Automation of basic  | c technological processes - casting, welding, forming and finishing. Facilities and equipment required to automate offices. Mechanizat   | ion and automation   | n in iron and  |
| steel foundries. A   | utomation and robotics of die casting process, including other peripherals. Designing and programming of robotic welding centers. De   | esigning and progra  | amming of  |
|  | robotic workstations for sheet metal forming. Design of automated forging cells. Design of automated finishing lines.  | 0 0 1 0  | ŭ  |
| 2331505  |  | Z,ZK   | 4  |
|  | Welding Technology   |  |  |
| 2331506  | Casting and Forming Technology   | Z,ZK   | 5  |
| Principles of selecti  | ion of the manufacturing method for semi-finished products. Production planning and production processes in the foundry. Production pr   | ocesses for forging  | gs,extrusion.  |
| 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  |
|  | an introduction to the topic of finishes (meaning and objectives of the field). They are introduced to the basics of corrosion distribution  |  | <u>'</u>   |
|  |  | and its species T  | PU focuses I   |
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| on corrosion protec  | ction in engineering and other industries. Are reconstructed surface preparation processes (mechanical, chemical). Among the discusse  | d technologies finis   | shes include   |
| on corrosion protec  | ction in engineering and other industries. Are reconstructed surface preparation processes (mechanical, chemical). Among the discusse<br>es (such as electroplating, zinc plating) technology conversion layers, further application of organic coatings. An important issue is also ec  | d technologies finis   | shes include   |
| on corrosion protec<br>coating technologie   | ction in engineering and other industries. Are reconstructed surface preparation processes (mechanical, chemical). Among the discusse es (such as electroplating, zinc plating) technology conversion layers, further application of organic coatings. An important issue is also ecdesign and testing in the field of surface treatment.  | d technologies finis<br>ological aspects, Te   | shes include<br>echnological   |
| on corrosion protect coating technologie 2332056   | etion in engineering and other industries. Are reconstructed surface preparation processes (mechanical, chemical). Among the discusse es (such as electroplating, zinc plating) technology conversion layers, further application of organic coatings. An important issue is also ecdesign and testing in the field of surface treatment.  Preparations and Tools  | d technologies finis<br>ological aspects, Te<br>KZ   | shes include<br>echnological   |
| on corrosion protect coating technologie 2332056   | ction in engineering and other industries. Are reconstructed surface preparation processes (mechanical, chemical). Among the discusse es (such as electroplating, zinc plating) technology conversion layers, further application of organic coatings. An important issue is also ecdesign and testing in the field of surface treatment.  | d technologies finis<br>ological aspects, Te<br>KZ   | shes include<br>echnological   |
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