### Study plan

### Name of study plan: 10 62 67 00 DTZI 2012 P základ

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

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

Required credits: 219
Elective courses credits: 1
Sum of credits in the plan: 220

Note on the plan: SP12BTZI--P # první pokus SP12BTZI-P BTZI 2012 P základ

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 209

The role of the block: P

Code of the group: 12B-KMENP TZI STR

Name of the group: 01 2012 souhrn skupin 12B\*PiP-KMEN pro i od 1 do 6 Requirement credits in the group: In this group you have to gain 156 credits Requirement courses in the group: In this group you have to complete 37 courses

Credits in the group: 156

Note on the group:

Společné povinné předměty bakalářských programů STR a TZSI

Note on the group		anaiaisnytii	program	IU SIK	a 1231	
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
2371047	Automatic Control Milan Hofreiter, R žena Petrová, Tomáš Vyhlídal, Jaromír Fišer <b>Tomáš</b> Vyhlídal Tomáš Vyhlídal (Gar.)	Z,ZK	5	3P+15C+05L	*	Р
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
2131512	Machine Elements and Mechanisms I. František Lopot	Z,ZK	6	3P+2C	*	Р
2131026	Machine Elements and Mechanisms II Eliška Cézová, Zden k ešpíro, Martin Dub, Jan Flek, Ji í Houkal, Jan Kanaval, František Lopot, Karel Petr František Lopot František Lopot (Gar.)	ZK	3	3P+0C	*	Р
2141504	Electric Circuits and Electronics Stanislava Papežová, Jan Chyský, Jaroslav Novák, Lukáš Novák <b>Zuzana</b> Sedlecká Jan Chyský (Gar.)	Z,ZK	4	2P+08C+1.4L	*	Р
2141505	Electrical machines and drives Jan Chyský, Jaroslav Novák, Lukáš Novák <b>Jaroslav Novák</b> Jaroslav Novák (Gar.)	Z,ZK	4	2P+08C+14L	*	Р
2021041	Physics I.	Z,ZK	7	4P+1L	*	Р
2021025	Physics II.	Z,ZK	4	1P+2L	3	Р
2133025	<b>Design</b> František Lopot František Lopot (Gar.)	Z	4	0P+4C	*	Р
2011021	Constructive Geometry Ivana Linkeová	Z,ZK	6	3P+2C	*	Р
2381054	Management and Economics of the Enterprise Theodor Beran, Št pánka Uli ná, Vladimír Brdek, Ladislav Vaniš, Petr Žemli ka Theodor Beran Theodor Beran (Gar.)	Z,ZK	4	2P+2C	*	Р
2011056	Mathematics I Radka Keslerová, Marta Hlavová, Ji í Holman, Gejza Dohnal, Marta ertíková, Vladimír Hric, Nikola Pajerová, Petr Louda, Lukáš Hájek, Radka Keslerová Gejza Dohnal (Gar.)	Z,ZK	8	4P+4C	*	Р
2011062	Matematika II. Radka Keslerová	Z,ZK	8	4P+4C	*	Р
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

2311101	Mechanics I. Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Zbyn k Šika, Zbyn k Šika Zbyn k Šika (Gar.)	Z,ZK	4	2P+2C	*	Р
2311102	Mechanics II. Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Zbyn k Šika, Václav Bauma Václav Bauma (Gar.)	Z,ZK	4	2P+2C	*	Р
2322029	Materials Science I.  Jana Sobotová, Eliška Gal íková, Ji í Cejp, Pavlína Hájková, Jan Kr il, Vladimír Mára, Lucie Pilsová, Ta ana Vacková Jana Sobotová Jana Sobotová (Gar.)	KZ	3	2P+1L	2	Р
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
2011049	Numerical Mathematics Radka Keslerová, Ji í Holman, Marta ertíková, Vladimír Hric, Petr Louda, Lukáš Hájek, Jan Valášek, Lud k Beneš, Tomáš Bodnár, Petr Svá ek Petr Svá ek (Gar.)	Z,ZK	4	2P+2C	4	Р
2012037	Computer Graphics Marta Hlavová, Ji í Holman, Nikola Pajerová, Martin Hanek, Jan Karel, Ivana Linkeová, Jaroslav Cibulka <b>Ivana Linkeová</b> Ivana Linkeová (Gar.)	KZ	3	1P+1C	*	Р
2372041	Computer Support for Study Vladimír Hlavá	KZ	3	1P+1C	*	Р
2181026	Momentum, Mass and Heat Transfer Martin Dostál, Vojt ch B lohlav, Stanislav Solna, Jan Sko ilas, Tomáš Jirout, Adam Krupica, Ji í Moravec Tomáš Jirout Tomáš Jirout (Gar.)	Z,ZK	5	3P+1C	*	Р
2131002	Engineering Design II Eliška Cézová, Martin Dub, Jan Flek, Jan Kanaval, František Lopot, Karel Petr, Martin Havlí ek, Jan Hoidekr, Roman Uhlí Karel Petr Karel Petr (Gar.)	Z,ZK	4	2P+3C	2	Р
2133013	Engineering Design III.  Jan Kanaval, František Lopot, Jan Hoidekr, David Skalický, Roman Uhlí Jan Kanaval Jan Kanaval (Gar.)	Z	2	0P+2C	Z	Р
2133014	Engineering Design IV. František Lopot František Lopot (Gar.)	Z	2	0P+2C	L	Р
2372083	Measurement in Engineering  Martin Novák, Vladimír Hlavá Martin Novák Martin Novák (Gar.)	KZ	3	1P+0C+2L	*	Р
2331068	Technology I.	Z,ZK	5	2P+2C	*	Р
2341014	Technology II.	Z,ZK	5	2P+0C+2L	*	Р
2012035	Algorithmization and Programming Fundamentals Ji í Holman, Marta ertíková, Vladimír Hric, Lukáš Hájek, Jan Halama, Vladimír Prokop, Martin Hanek, Jan Karel, Josef Musil, Petr Svá ek Petr Svá ek (Gar.)	KZ	4	1P+2C	*	Р
2153005	Fundamentals of Energy Conversions	Z	1	1P+1C	*	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=12B-KMENP TZI STR Name=01 2012 souhrn skupin 12B\*PiP-KMEN pro i od 1 do 6

2371047 Automatic Control Z,ZK 5

Automatic controllers are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automatic control theory and practice like transfer functions, open versus closed loop control, design of controllers and frequency based analysis of control systems. The course also concentrates on logic control and control via programmable logic controllers. Some seminaries are arranged in laboratories where practical skills and control engineering methods are trained. Students begin to work with

MATLAB software as a common platform of control engineers.

2182019 Chemistry KZ 3

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

2131512 Machine Elements and Mechanisms I. Z,ZK 6

Joints and joining elements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, keys). Mechanical transmissions (belt, chain, friction, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded connecting bolts, clamped, pressed, splined and key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple assembly units is also indispensable seminar work.

2131026 Machine Elements and Mechanisms II ZK 3
Preliminary design, design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, pipelines and their accessories

and fittings.

2141504 Electric Circuits and Electronics Z,ZK 4

Introduction into theory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of energy. El. Power and Energy. Introduction into electronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, microprocessor.

2141505 Electrical machines and drives Z,ZK 4
AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transformer, principle, construction,

AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Iransformer, principle, construction, 3-phase transformer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-torque characteristic, speed control. Synchronous machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characteristic. Low-voltage instruments. Low-voltage distribution system.

2021041   Physics I.	Z,ZK	7
Kinematics and dynamics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic waves. Fluid mechanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co		
insulators. Magnetic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and inc		
measurements of 11 various experiments related to the lectures.		
2021025 Physics II.	Z,ZK	4
Faraday's law of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of	_	
of radiation with matter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom a Spectra, x-rays, ;laser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 e.		
2133025 Design	7	4
Design, design calculations and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft couplings and		7
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.	,	
2381054 Management and Economics of the Enterprise	Z,ZK	4
The subject is intended to teach the students of the Faculty of Mechanical Engineering the basic economic starting points necessary for technical reasonable relationships between economic starting points necessary for technical reasonable relationships between economic starting points necessary for technical reasonable relationships between economic starting points necessary for technical reasonable relationships between economic starting points necessary for technical reasonable relationships between economic starting points necessary for technical reasonable relationships between economic starting points necessary for technical reasonable relationships between economic starting points necessary for technical reasonable relationships between economic starting points necessary for technical reasonable relationships between economic starting points necessary for technical reasonable relationships between economic starting points necessary for technical reasonable relationships between economic starting points necessary for technical reasonable relationships between economic starting points necessary for the results of the results	-	
the basic relationships between economic quantities costs - revenues, expenses - incomes and other basic economic terms. The goal is for the audi with economists in organizations, every product or service is valued at a selling price and therefore it is necessary to understand the simple costing		
technician will encounter reports and should understand the basic structure of financial statements. As a future manager, he will compile and approve	-	
of management, they will learn basic managerial functions and their content. Furthermore, they will learn how to use network analysis in project man	nagement. For dec	cision-making
purposes, they will learn the applications of multi-criteria decision-making. The basics of marketing and strategic management will be introduced.		
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 connect will also get to know the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic area		-
of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.	3. cigerinaribers	and eigenvectors
2011062 Matematika II.	Z,ZK	8
Open and closed set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differentiability.	ntial 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.		
of integrals to polar, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Gr		
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 function are gauss-Ostrogradskij theorem.	ctor field through a	a surface. The
2011009 Mathematics III	Z,ZK	5
An introductory course in ordinary differential equation and infinite series.	_,	_
2311101 Mechanics I.	Z,ZK	4
Mechanics I deals with the basic concepts of statics. There are described the methods of solution of equilibrium of particles and rigid bodies and their	systems with and	I without friction.
There are introduced the methods of description of position and motion of particles and rigid bodies.	7.71	
2311102   Mechanics II.  Kinematics of point and of rigid bodies. Transformation matrix. Kinematics of concurrent movements. Motion: translation, rotation, general planar motio	Z,ZK	4
general spatial motion. Composition of mechanisms. Basic planar mechanisms. Analytical methods in kinematics of mechanisms - Trigonometric and	•	
in kinematics. Basic theory of gearing. Transmition mechanisms with geers. Strutting and seezing in mechanisms. Cable mechanisms.		
2322029 Materials Science I.	KZ	3
History and present state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, def	-	
fracture of materials, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, in		
Materials Science II. Fundamentals of metallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal are	Z,ZK	4
technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materials.	u trierino-mechai	lical processing,
2011049 Numerical Mathematics	Z,ZK	4
Numerical solution of systems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical solution of nonlinear algebraic equations.		linary differential
equations, initial and boundary value problems. Numerical solution of basic linear partial differential equations by finite difference method.		
2012037 Computer Graphics	KZ	3
2372041 Computer Support for Study	KZ	3
The course introduces students into creating technical and professional documents on computers or Web and into realizing technical computations w gain practical skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical		
2181026 Momentum, Mass and Heat Transfer	Z,ZK	5
Fundamentals of transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanic	,	_
time distributions in continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and		
systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.		
2131002 Engineering Design II	Z,ZK	4
Principles of ISO GPS (Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface and leaves to the state of the second products of t	-	
dimensional loops, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice the	Z	2
2133013   Engineering Design III.  Design of assembly unit (draft drawing, detail drawing, assembly drawing, technical report)	۷	۷
2133014 Engineering Design IV.	Z	2
2372083 Measurement in Engineering	KZ	3
Overview of sensor principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and		-
instruments.		
2331068 Technology I.	z,zk	5
Foundry properties of metals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of the sting up. Cutting. Cold and bot forming. Welder Welderbillty, Welderbi	orming processes	. Semi-products,
heating-up. Cutting. Cold and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. Brazing. Surface treatments.  2341014 Technology II.	Z,ZK	5
mechanics of chip formation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining eco		_
programming of manufacture. Engineering metrology. Assembly techniques. Introduction to process planing.		,

2012035 Algorithmization and Programming Fundamentals KZ 4
Programming in MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Matrices, vectors and operations.
Writting M-script. Input and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Systems of linear equations. Scripts and functions. Structure of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. Structures. Algorithmization of simple programs: minimum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of systems of linear equations.

2 153005 Fundamentals of Energy Conversions

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: 12DTP1P-KMEN

Fundamentals of Law

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

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

Credits in the group: 0

Note on the group:

2383001

12B\*\*1P-KMEN #

2

NOTE OF THE	group.					
Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members)  Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2182019	Chemistry Radek Šulc, Martin Dostál, Vojt ch B lohlav, Stanislav Solna , Jan Sko ilas Radek Šulc Radek Šulc (Gar.)	KZ	3	2P+1C	1	Р
2011021	Constructive Geometry Ivana Linkeová	Z,ZK	6	3P+2C	*	Р
201A021	Constructive Geometry A  Ivana Linkeová	ZK	3	0P+0C	*	Р
2011056	Mathematics I Radka Keslerová, Marta Hlavová, Ji í Holman, Gejza Dohnal, Marta ertíková, Vladimír Hric, Nikola Pajerová, Petr Louda, Lukáš Hájek, Radka Keslerová Gejza Dohnal (Gar.)	Z,ZK	8	4P+4C	*	Р
201A056	Mathematics I.A Radka Keslerová	ZK	4	0P+0C	*	Р
2372041	Computer Support for Study Vladimír Hlavá	KZ	3	1P+1C	*	Р
2333038	Fundamentals of Technology I.	Z	3	1P+1C	*	Р

# Characteristics of the courses of this group of Study Plan: Code=12DTP1P-KMEN Name=00 2012 D kmenové 1. semestr TZI prezen ní 2182019 Chemistry KZ 3

General chemistry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and 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 of	on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.		
2011056	Mathematics I	Z,ZK	8

In the course, greater 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.

of a matrix, Taylor polyn	omial, integral as a limit function, integration	n of some special funct	tions.	-	_	_
2372041	Computer Support for Study				KZ	3

The course introduces students into creating technical and professional documents on computers or Web and into realizing technical computations with the use of computers. Students 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.

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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 alo	gebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable			
2333038	Fundamentals of Technology I.	Z	3	
1	'	' <u>-</u> '		

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: 12DTP2P-KMEN

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

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members)  Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2021041	Physics I.	Z,ZK	7	4P+1L	*	Р
202A041	Physics I.	ZK	3	0P+0L	*	Р
2011062	Matematika II. Radka Keslerová	Z,ZK	8	4P+4C	*	Р
201A062	Mathematics II.A Radka Keslerová	ZK	4	0P+0C	*	Р
2322029	Materials Science I.  Jana Sobotová, Eliška Gal íková, Ji í Cejp, Pavlína Hájková, Jan Kr il, Vladimír  Mára, Lucie Pilsová, Ta ana Vacková Jana Sobotová Jana Sobotová (Gar.)	KZ	3	2P+1L	2	Р
2012037	Computer Graphics Marta Hlavová, Ji i Holman, Nikola Pajerová, Martin Hanek, Jan Karel, Ivana Linkeová, Jaroslav Cibulka Ivana Linkeová Ivana Linkeová (Gar.)	KZ	3	1P+1C	*	Р
2131002	Engineering Design II  Eliška Cézová, Martin Dub, Jan Flek, Jan Kanaval, František Lopot, Karel  Petr, Martin Havlí ek, Jan Hoidekr, Roman Uhlí Karel Petr Karel Petr (Gar.)	Z,ZK	4	2P+3C	2	Р

#### Characteristics of the courses of this group of Study Plan: Code=12DTP2P-KMEN Name=00 2012 D kmenové 2. semestr TZI 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. Z,ZK 8

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

2322029 Materials Science I. KZ 3

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

 2012037
 Computer Graphics
 KZ
 3

 2131002
 Engineering Design II
 Z,ZK
 4

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

202A041 Physics I. ZK 3

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

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: 12DTP3P-KMEN

measurements of 11 various experiments related to the lectures.

Name of the group: 00 2012 D kmenové 3. semestr TZI prezen ní

Requirement credits in the group: In this group you have to gain 28 credits

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

Credits in the group: 28

Note on the group:

12B\*\*3P-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
2021025	Physics II.	Z,ZK	4	1P+2L	3	Р
202A025	Physics II.A	ZK	2	0P+0C	*	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
201A009	Mathematics III.A Stanislav Kra mar	ZK	2	0P+0C	*	Р

2311101 <b>Mechanics I.</b> Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Z Neusser, Jan Pelikán, Pavel Steinbauer, Zbyn k Šika, <b>Zbyn k</b> Š. Zbyn k Šika (Gar.)		4	2P+2C	*	Р
2321039 Materials Science II.  Jana Sobotová, Eliška Gal íková, Ji í Cejp, Pavlína Hájková, Jan Kr il, V  Mára, Lucie Pilsová, Ta ana Vacková, Jan Walter, Jana Sobotov  Jana Sobotová (Gar.)		4	2P+2L	*	Р
2133013 Engineering Design III.  Jan Kanaval, František Lopot, Jan Hoidekr, David Skalický, Roman Uhl Kanaval Jan Kanaval (Gar.)	lí <b>Jan</b> Z	2	0P+2C	Z	Р
Algorithmization and Programming Fundamentals  Ji i Holman, Marta ertiková, Vladimír Hric, Lukáš Hájek, Jan Halama, V  Prokop, Martin Hanek, Jan Karel, Josef Musil, Petr Svá ek Petr S  (Gar.)		4	1P+2C	*	Р
Characteristics of the courses of this group of Study Plan: Code=12DTP3P-KN	/IEN Name=00 2012	D kmen	ové 3. se	mestr TZI	prezen n
2021025 Physics II.				,ZK	4
Faraday's law of electromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, g	geometrical optics. Quantu	ım propertie	es of electron	nagnetic wave	es. Interaction
of radiation with matter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical descript	tion of particle's motion. H	ydrogen at	om and perio	dic system o	f elements.
Spectra, x-rays, ;laser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear en	nergy. Laboratories - meas	urements c	f 6 experime	nts related to	the lectures.
2011009 Mathematics III			Z	,ZK	5
An introductory course in ordinary differential equation and infinite series.			·		
2311101 Mechanics I.			Z	,ZK	4
Mechanics I deals with the basic concepts of statics. There are described the methods of solution of equilib	rium of particles and rigid	bodies and	their system	s with and wi	thout friction.
There are introduced the methods of description of position and motion of particles and rigid bodies.					
2321039 Materials Science II.			Z	,ZK	4
Fundamentals of metallurgy, iron-carbon alloys and influence of other elements, phase transformations, the	ermal, combined chemica	I and therm	al and therm	o-mechanica	I processing,
technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites,	selection of materials.				
2133013 Engineering Design III.				Z	2
Design of assembly unit (draft drawing, detail drawing, assembly drawing, technical report)			<u>'</u>		
2012035 Algorithmization and Programming Fundamentals				KZ	4
Programming in MATLAB and its programming language. MATLAB command line. Elementary commands,	, variable, assignment and	expression	n. Matrices, v	ectors and or	perations.
Writting M-script. Input and output. Condition and cycle. Algorithmization of simple problems in MATLAB. G	Graphical commands. Matr	ix operatior	ns. Systems o	of linear equa	tions. Scripts
and functions. Structure of program. Variables, expressions, assignment, and input / output commands. swi	ritch. For cycle. Arrays and	files. Point	ers. Structure	s. Algorithmi	zation of

simple programs: minimum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of systems of linear equations.

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.

Code of the group: 12DTP4P-KMEN

Mathematics III.A

Physics II.A

Name of the group: 00 2012 D kmenové 4. semestr TZI prezen ní

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

Credits in the group: 0

Note on the group:

201A009

12B\*P4P-KMEN #

ZK

Note on the group	J					
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
2311102	Mechanics II. Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Zbyn k Šika, Václav Bauma Václav Bauma (Gar.)	Z,ZK	4	2P+2C	*	Р
2011049	Numerical Mathematics Radka Keslerová, Ji í Holman, Marta ertíková, Vladimír Hric, Petr Louda, Lukáš Hájek, Jan Valášek, Lud k Beneš, Tomáš Bodnár, Petr Svá ek Petr Svá ek (Gar.)	Z,ZK	4	2P+2C	4	Р
201A049	Numerical Mathematics A  Lud k Beneš	ZK	2	0P+0C	*	Р
2133014	Engineering Design IV. František Lopot František Lopot (Gar.)	Z	2	0P+2C	L	Р
2331068	Technology I.	Z,ZK	5	2P+2C	*	Р

# Characteristics of the courses of this group of Study Plan: Code=12DTP4P-KMEN Name=00 2012 D kmenové 4. semestr TZI prezen ní 2311102 Mechanics II. Z.ZK 4

Kinematics of point and of rigid bodies. Transformation matrix. Kinematics of concurrent movements. Motion: translation, rotation, general planar motion, spherical motion, screw motion, general spatial motion. Composition of mechanisms. Basic planar mechanisms. Analytical methods in kinematics of mechanisms - Trigonometric and vector method. Graphical methods in kinematics. Basic theory of gearing. Transmition mechanisms with geers. Strutting and seezing in mechanisms. Cable mechanisms.

2011049	Numerical Mathematics	Z,ZK	4		
Numerical solution of sy	lumerical solution of systems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical solution of ordinary differ				
equations, initial and bo	undary value problems. Numerical solution of basic linear partial differential equations by finite difference method.				
2133014	Engineering Design IV.	Z	2		
2331068	Technology I.	Z,ZK	5		
Foundry properties of m	etals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of	forming processes	s. Semi-products,		
heating-up. Cutting. Col-	neating-up. Cutting. Cold and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. Brazing. Surface treatments.				
201A049	ZK	2			

Code of the group: 12DTP5P-KMEN

Name of the group: 00 2012 D kmenové 5. semestr TZI prezen ní

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

Credits in the group: 0

Note on the group: 12B\*P5P-KMEN#

mote on the group	).	-IXIVILIN #				
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
2131512	Machine Elements and Mechanisms I. František Lopot	Z,ZK	6	3P+2C	*	Р
2141504	Electric Circuits and Electronics Stanislava Papežová, Jan Chyský, Jaroslav Novák, Lukáš Novák <b>Zuzana</b> Sedlecká Jan Chyský (Gar.)	Z,ZK	4	2P+06C+1.4L	*	Р
2311107	Mechanics III. Tomáš Vampola	Z,ZK	7	2P+3C	5	Р
2372083	Measurement in Engineering Martin Novák, Vladimír Hlavá Martin Novák Martin Novák (Gar.)	KZ	3	1P+0C+2L	*	Р
2341014	Technology II.	Z,ZK	5	2P+0C+2L	*	Р
2153005	Fundamentals of Energy Conversions	Z	1	1P+1C	*	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=12DTP5P-KMEN Name=00 2012 D kmenové 5. semestr TZI prezen ní

2131512 | Machine Elements and Mechanisms I.

Joints and joining elements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, keys). Mechanical transmissions (belt, chain, friction, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded connecting bolts, clamped, pressed, splined and key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple assembly units is also indispensable seminar work.

2141504 Electric Circuits and Electronics Z,ZK 4
Introduction into theory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of energy. El. Power and Energy.

Introduction into theory of electrical circuits, analysis special types of electrical circuits as DC and AC. transfer states in circuits with accumulators of energy. Et. Power and Energy Introduction into electronic circuits (rectifier, stabilizer, power control, operational amplifier). Analogue and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, microprocessor.

2372083 Measurement in Engineering KZ 3
Overview of sensor principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and verification of measurement

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,

programming of manufacture. Engineering metrology. Assembly techniques. Introduction to process planing.

2153005 Fundamentals of Energy Conversions Z 1

2383001 Fundamentals of Law Z 2

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

2311107 | Mechanics III. | Z,ZK | 7

Mechanics III deals with the basic concepts of dynamics. Methods of solving the dynamics of mass particle and body motion and their systems are described. Methods for describing and solving vibrations of systems.

Code of the group: 12DTP6P-KMEN

Name of the group: 00 2012 D kmenové 6. semestr TZI prezen ní

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

Credits in the group: 0

instruments.

Note on the group: 12B\*\*6P-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
2371047	Automatic Control Milan Hofreiter, R žena Petrová, Tomáš Vyhlídal, Jaromír Fišer Tomáš Vyhlídal Tomáš Vyhlídal (Gar.)	Z,ZK	5	3P+15C+05L	*	Р
2131026	Machine Elements and Mechanisms II  Eliška Cézová, Zden k ešpíro, Martin Dub, Jan Flek, Ji í Houkal, Jan  Kanaval, František Lopot, Karel Petr František Lopot František Lopot (Gar.)	ZK	3	3P+0C	*	Р
2141505	Electrical machines and drives Jan Chyský, Jaroslav Novák, Lukáš Novák <b>Jaroslav Novák</b> Jaroslav Novák (Gar.)	Z,ZK	4	2P+06C+1.4L	*	Р
2133025	Design František Lopot František Lopot (Gar.)	Z	4	0P+4C	*	Р
2381054	Management and Economics of the Enterprise Theodor Beran, Št pánka Uli ná, Vladimír Brdek, Ladislav Vaniš, Petr Žemli ka Theodor Beran Theodor Beran (Gar.)	Z,ZK	4	2P+2C	*	Р
2181026	Momentum, Mass and Heat Transfer Martin Dostál, Vojt ch B lohlav, Stanislav Solna, Jan Sko ilas, Tomáš Jirout, Adam Krupica, Ji í Moravec Tomáš Jirout Tomáš Jirout (Gar.)	Z,ZK	5	3P+1C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12DTP6P-KMEN Name=00 2012 D kmenové 6. semestr TZI prezen ní

Automatic controllers are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automatic control theory and practice like transfer functions, open versus closed loop control, design of controllers and frequency based analysis of control systems. The course also concentrates on logic control and control via programmable logic controllers. Some seminaries are arranged in laboratories where practical skills and control engineering methods are trained. Students begin to work with MATLAB software as a common platform of control engineers.

2131026 Machine Elements and Mechanisms II Preliminary design, design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, pipelines and their accessories

and fittings. 2141505 Electrical machines and drives

AC el. curcuits. Electrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transformer, principle, construction, 3-phase transformer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-torque characteristic, speed control. Synchronous machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characteristic. Low-voltage instruments. Low-voltage distribution system.

2133025 Design Design, design calculations and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft couplings and clutches.

Management and Economics of the Enterprise 4

The subject is intended to teach the students of the Faculty of Mechanical Engineering the basic economic starting points necessary for technical reasoning and to help them understand the basic relationships between economic quantities costs - revenues, expenses - incomes and other basic economic terms. The goal is for the audience to be able to communicate with economists in organizations, every product or service is valued at a selling price and therefore it is necessary to understand the simple costing of products and services. Every technician will encounter reports and should understand the basic structure of financial statements. As a future manager, he will compile and approve the operating budget. In the field of management, they will learn basic managerial functions and their content. Furthermore, they will learn how to use network analysis in project management. For decision-making purposes, they will learn the applications of multi-criteria decision-making. The basics of marketing and strategic management will be introduced.

2181026 Momentum, Mass and Heat Transfer

Z,ZK Fundamentals of transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanical energy equation. Residence time distributions in continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and thermal radiation. Multicomponent systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 10

The role of the block: PV

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

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

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

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

Credits in the group: 2

Note on the group:

Ze skupiny humanitních předmětů nutno j e d e n absolvovat

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

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

2383009 Communication and Dealing with People

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

Code of the group: 12B\*\*4Q-BZJ S+T

Name of the group: 08 2012 bakalá ské zkoušky z jazyk pro STR a TZIS

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:

Součástí tohoto bakalářského studijního programu je povinnost vykonat zkoušku z jednoho cizího jazyka. Student ji může vykonat kdykoliv v průběhu studia. Administrativně je předmět přiřazen ke studijnímu plánu čtvrtého semestru druhého ročníku, neboť se předpokládá, že si student během předcházejících semestrů nejprve doplňuje v jazykových kurzech (volitelných předmětech) jazykové znalosti zejména v oblasti odborné terminologie

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

## Characteristics of the courses of this group of Study Plan: Code=12B\*\*4Q-BZJ S+T Name=08 2012 bakalá ské zkoušky z jazyk pro STR a TZIS

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

Code of the group: 12BT\*6Q-OP

Name of the group: 10 2012 BTZI 6. sem oborové projekty

Requirement credits in the group: In this group you have to gain 2 credits

Requirement courses in the group: In this group you have to complete 1 course

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
2012091	Project Ji i Fürst	KZ	2	0P+2C	*	PV
2152091	Deparmental Project	KZ	2	0P+2C	*	PV
2182091	Project Tomáš Jirout	KZ	2	0P+2C	*	PV
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
2352091	Specialization Project	KZ	2	0P+2C+0L	*	PV
2362091	Project	KZ	2	0P+2C	*	PV
2372091	Project	KZ	2	0P+2C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12BT\*6Q-OP Name=10 2012 BTZI 6. sem oborové projekty

2012091	Project	KZ	2					
2152091	Deparmental Project	KZ	2					
2182091	Project	KZ	2					
Absolvent se seznámí								
2322091	Project	KZ	2					
On the basis of the pre	liminary submission of a bachelor thesis the students, under supervision of their supervisors, prepare a review summarizing a	nd evaluating the	studied literature					
with particular emphas	is on experimental technologies which can be applied in their bachelor theses. They can also mention a planned experiment of	or evaluate hithert	o obtained					
knowledge or results.								
2332091	Project	KZ	2					
2342091	Project	KZ	2					
Work on specialized ta	sks.							
2352091	Specialization Project	KZ	2					
2362091	Project	KZ	2					
2372091	Project	KZ	2					
An individual project fr	An individual project from the branch of specialisation, which student will study on his/her magister level							

Code of the group: 12BT\*6Q-BP

Name of the group: 11 2012 BTZI 6. sem bakalá ské práce

Requirement credits in the group: In this group you have to gain 4 credits

Requirement courses in the group: In this group you have to complete 1 course

Credits in the group: 4

Note on the group:

poznámka 12BT\*6Q-BP 2012 BTZI 6. sem bakalářské práce

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
2213991	Bachelor Thesis	Z	4	0P+8C	*	PV
2373991	Bachelor Thesis	Z	4	0P+0C	*	PV
2363991	Bachelor Thesis	Z	4	0P+0C	*	PV
2153991	Bachelor Thesis	Z	4	0P+0C	*	PV
2323991	Bachelor thesis	Z	4	0P+6C	*	PV
2183991	Bachelor Thesis Tomáš Jirout	Z	4	0P+0C	*	PV
2333991	Bachelor Thesis	Z	4	0P+0C	*	PV
2013991	Bachelor Thesis	Z	4	0P+0C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12BT\*6Q-BP Name=11 2012 BTZI 6. sem bakalá ské práce

2213991	Bachelor Thesis	Z	4				
2373991	Bachelor Thesis	Z	4				
Each student will solve	ach student will solve his individual theme under guiding of his individual supervising department specialist. Result is his/her bachelor thesis.						
2363991	Bachelor Thesis	Z	4				
2153991	Bachelor Thesis	Z	4				
2323991	Bachelor thesis	Z	4				
Development of the bad	chelor thesis on an assignment under the supervision.	'	•				
2183991	Bachelor Thesis	Z	4				
2333991	Bachelor Thesis	Z	4				
2013991	Bachelor Thesis	Z	4				

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

The role of the block: V

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

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

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

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

Credits in the group: 0 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2046155	English Conversation Ilona Šimice, Michele Le Blanc Ilona Šimice Michele Le Blanc (Gar.)	Z	2	0P+2C	*	V
2046156	English Conversation Ilona Šimice, Michele Le Blanc	Z	2	0P+2C	L	V
2046071	English - Lower Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová	Z	2	0P+2C	L	V
2046070	English - Lower Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046074	English - Advanced Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová, Michaela Le Blanc Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046075	English - Advanced Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová, Michele Le Blanc Ilona Šimice Ilona Šimice (Gar.)	Z	2	0P+2C	L	V
2046072	English - Upper Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046073	English - Upper Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Ilona Šimice Ilona Šimice (Gar.)	Z	2	0P+2C	L	V
2046068	English - Beginners Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046069	English - Beginners Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Ilona Šimice	Z	2	0P+2C	L	V
2046126	Czech Lower Intermediate  Jaroslava Kommová	Z	2	0P+2C	L	V
2046125	Czech Lower Intermediate  Jaroslava Kommová	Z	2	0P+2C	Z	V
2046118	Czech -Advanced Jaroslava Kommová	Z	2	0P+2C	L	٧
2046117	Czech -Advanced Jaroslava Kommová	Z	2	0P+2C	Z	V
2046127	Czech - Upper Intermediate  Jaroslava Kommová	Z	2	0P+2C	Z	٧
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	٧

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	٧
2046091	French - Advanced Michaela Schusová, Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	L	٧
2046090	French - Advanced Michaela Schusová, Dušana Jirovská, Eliška Vítková Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046089	French - Upper Intermediate Michaela Schusová, Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	L	V
2046088	French - Upper Intermediate Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	٧
2046084	French - Beginners Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046085	French - Beginners´ Course Michaela Schusová, Dušana Jirovská Michaela Schusová Dušana Jirovská (Gar.)	Z	2	0P+2C	L	V
2146060	Indonesian Language Course for Exchange	Z	2	0P+2C	*	V
2146061	Technical Indonesian - Course I.	Z	2	0P+2C	Z	V
2144062	Technical Indonesian - Course II.	Z,ZK	3	1P+2C	L	V
2046078	German - Lower Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046079	German - Lower Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046083	German - Advanced Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Jaroslava Kommová Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046082	German - Advanced Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046081	German - Upper Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	٧
2046080	German - Upper Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	٧
2046076	German - Beginners Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Petr Laurich (Gar.)	Z	2	0P+2C	Z	V
2046077	German - Beginners Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	٧
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>	Z	2	0P+2C	*	V
2046164	Jaroslava Kommová (Gar.)  Presentations in Russian	Z	2	0P+2C	*	V
2046163	Dušana Jirovská  Presentations in French language	Z	2	0P+2C	*	V
2046165	Dušana Jirovská <b>Dušana Jirovská</b> Presentations in Spanish Eliška Vítková	Z	2	0P+2C	*	V
2046137	Russian - Lower Intermediate Course Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046138	Russian - Lower Intermediate Course Michaela Schusová, Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046141	Russian - Advanced Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046142	Russian - Advanced Michaela Schusová, Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046140	Russian - Upper Intermediate Michaela Schusová, Hana Volejníková, Dušana Jirovská <b>Dušana Jirovská</b>	Z	2	0P+2C	L	V

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

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

improving communicative sitils in speaking on general topics and general technical topics.  2 2 2 2046156 English Convertisation mproving communicative sitils in speaking on general topics and general technical topics.  2 2 2 2046071 English - Lower Intermediate Major of the Common European Framework of Reterence Level A2 Arm: Understanding clearly spoken language about everyday situations which a student meets either at school or art harber free time and speaking about them. Writing is a simple way about smallist ropics, reading and comprehension of simple tests. Improvement of professional language.  2046070 English - Lower Intermediate  2 2 2 2 4 Im. Understanding clearly what is spoken about everyday situations which a student meets at the control of simple tests. Improvement of professional language.  2046074 English - Advanced  English - Description and explication of speaker testing and comprehension of speaker testing and advanced level.  English - Description and explication of explored testing and explication in a discussion. Written and ontal skills on advanced level.  English - Upper Intermediate  English - Upper Intermediate  English - Upper Intermediate explored testing the explored testing and explored testing testing the explored testing the explored testing testing the explored testing testing the explored testing testing the explored testing testing the	kurzy a prezentace		
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2046155 English Conversation	Z	2
improving communicative skills in speaking on general topics and general technical topics.  2 2 depped to the Common European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school or at his/her free time and speaking about them. Writing in a simple way about similar topics. Reading and comprehension of simple texts. Improvement of professional language.  2 2 Imm. 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 similar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.  2 2 Imm. 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 aminist ropics. Reading and comprehension of spoken facilities and science in the air comprehension of spoken facilities and science in the air comprehension of spoken facilities and science in a scientific and scie	Improving communicative skills in speaking on general topics and general technical topics.		
2 2 depend to the Common European Framework of Reference Level B1 - B2. The aim: comprehension of spoken surgue, askills taking into consideration professional English speech and conversation advanced level. B1 - B2. The aim: to extend language skills taking into consideration professional English speech and conversations of standard English speech and conversation advanced level. B1   English - B2   English	2046156 English Conversation	Z	2
Aspect to the Common European Framework of Reference Level &Z Aim: Understanding clearly spoken language about everyday situations which a student meets and tableshing bout them. Writing in a simple way about afmilliar topics, reading and comprehension of simple texts. Improvement of professional language.  2046070	Improving communicative skills in speaking on general topics and general technical topics.	'	•
Valepoed to the Common European Framework of Reference Level AZ Alm. Understanding clearly spoken language about everyday situations which a student meets and tables free free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046070	2046071 English - Lower Intermediate	Z	2
2046070   English - Lower Intermediate Wirth Chartestanding 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 amiliar topics. Reading and comprehension of simple teats. Improvement of professional language. A1 - A2.  2046074   English - Advanced   Z   2   2   2   2   2   2   2   2   2		ons which a student meets	either at school
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about amiliator topics. Reading and comprehension of simple tests. Improvement of professional language. A1 - A2.  2046074	or at his/her free time and speaking about them. Writing in a simple way about familiar topics, reading and comprehension of simple texts.	Improvement of profession	al language.
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about amiliator topics. Reading and comprehension of simple tests. Improvement of professional language. A1 - A2.  2046074	2046070 English - Lower Intermediate	7	2
amiliar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.  2046074	9	about them. Writing in a si	. –
Page 2006/07   English - Advanced   Z   2			,,
The aim comprehension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Written and oral skills on advanced evel. Bit 1. B2.  2 (Wapped to the Common European Farmework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Written and oral skills on advanced level. B1 - B2. The aim: comprehension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay, reading and comprehension of popular-scientific and scientific articles or texts from students' field of studies without difficulties. Grammar structures on advanced level.  2 (Paglish - Upper Intermediate and common professional terminology. Comprehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1.  2 (Paglish - Upper Intermediate)  3 (Paglish - Upper Intermediate)  4 (Paglish - Upper Intermediate)  5 (Paglish - Upper Intermediate)  6 (Paglish - Upper Intermediate)  7 (Paglish - Upper Intermediate)  8 (Paglish - Upper Intermediate)  9 (Paglish - Upper I		7	2
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 without difficulties.  Tammar structures on advanced level. B1 - B2. The aim: comprehension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Written and oral skills on advanced level. B1 - B2. The aim: comprehension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Written and oral skills on advanced level. B1 - B2. The aim: comprehension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Written and oral skills on advanced level. B2 (B2 - B2 - B2 - B2 - B2 - B2 - B2 -		l l	Į.
Cammar structures on advanced level. B1 - B2.  2046075			
Regish - Advanced   Regish - Advanced   Z   2		adont o noid or oldaroo mar	
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 great 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 comprehension of popular-scientific and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level. Page 12		7	2
and active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay, reading and comprehension of popular-scientific and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046072		=	1
2 20/146072   English - Upper Intermediate   Z 2 20/146073   English - Upper Intermediate   Z 2 2 20/146078   English - Upper Intermediate   Z 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			
English - Upper Intermediate   Z   2   2   2   2   2   2   2   2   2		a comprehension or popul	ar solontino ana
The aim is to extend language skills taking into consideration professional English and common professional terminology. Comprehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge, A2 - B1.  2 QU466073   English - Upper Intermediate   Z   2 Quadrotory		7	2
about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1.  2046073 English - Upper Intermediate Mapped to the Common European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional English and common professional erminology. Comprehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar rowledge.  2 2  24m: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional language). A1  2046068 English - Beginners  2 2  24m: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional language). A1  2046069 English - Beginners  3 2 2  2046126 Czech Lower Intermediate  2 2 2  2046126 Czech Lower Intermediate  3 2 2  24m: 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 amiliar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046125 Czech Lower Intermediate  2 2 2  24m: 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 amiliar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046125 Czech Lower Intermediate  2 2 2  24m: 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 amiliar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046125 Czech Lower Intermediate  2046126 Czech -Advanced  2046117 Czech -Advanced  2046117			1
English - Upper Intermediate  Mapped to the Common European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional English and common professional erminology. Comprehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening gramman convoledge.  2046068		ii standard English speech	and conversation
Napped to the Common European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional English and common professional erminology. Comprehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening gramman knowledge.  2046068		7	
erminology. Comprehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening gramman knowledge.  2046068		<u> </u>	-
2046068   English - Beginners   Z   2   2046069   English - Beginners   Z   2   2046126   Czech Lower Intermediate   Z   2   2046125   Czech Lower Intermediate   Z   2   2046125   Czech Lower Intermediate   Z   2   2046125   Czech Lower Intermediate   Z   2   2046118   Czech - Advanced   Z   2   2046117   Czech - Advanced   Z   2   2046118   Czech - Advanced   Z   2   2046117   Czech - Reading and coral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehension of popular-scientific and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046117   Czech - Advanced   Z   2   2046117   Czech - Advanced   Z   2   2046117   Czech - Advanced   Z   2   2046128   Czech - Upper Intermediate   Z   2   2046129   Czech - Upper Intermediate   Z   2   2046129   Czech - Cze			-
English - Beginners  Z 2  Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional language). A1  Z 2  Z046069 English - Beginners  Mapped to the Common European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional language).  Z 2  Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about amiliar topics. Reading and comprehension of simple texts. Improvement of professional language.  Z 2  Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about amiliar topics. Reading and comprehension of simple texts. Improvement of professional language.  Czech Lower Intermediate  Z 2  Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about amiliar topics. Reading and comprehension of simple texts. Improvement of professional language.  Czech Lower Intermediate  Z 2  Amiliar topics. Reading and comprehension of simple texts. Improvement of professional language.  Czech -Advanced  Z 2  Mapped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czech without great 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 comprehension of popular-scientific and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  Czech - Advanced  Czech - Advanced  Czech - Advanced  Czech - Advanced  Czec		, on intermediate level. Broa	adening grammar
Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional language). A1  2046069			
English - Beginners    Rapped to the Common European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional language).    2046126		_	1
Mapped to the Common European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional language).  2046126			1
2046126 Czech Lower Intermediate 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		-	I .
Czech Lower Intermediate Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about armiliar topics. Reading and comprehension of simple texts. Improvement of professional language.  Czech Lower Intermediate Czech Lower Interm		Jnderstanding and use of b	asic expressions
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about 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 simple way about amiliar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046118   Czech -Advanced   Z   2    Auapped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czech without great 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 comprehension of popular-scientific and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046117   Czech -Advanced   Z   2    Comprehension of spoken language as well as lectures in Czech 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 currant issues and popular scientific and technical articles.  2046127   Czech - Upper Intermediate   Z   2    20defitanding 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 events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  2046128   Czech - Upper Intermediate   Z   2    Wapped to the Common European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional Czech and common professi		1	
amiliar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046125   Czech Lower Intermediate   Z   2  2   2  2   2   2  2   2   2   2  2   2	2046126 Czech Lower Intermediate	Z	2
Czech Lower Intermediate  Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about amiliar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046118  Czech -Advanced  Mapped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czech without great 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 comprehension of popular-scientific and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046117  Czech -Advanced  Z 2  Czomprehension of spoken language as well as lectures in Czech 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 currant issues and popular scientific and technical articles.  2046127  Czech - Upper Intermediate  Z 2  Understanding 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 events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  2046128  Czech - Upper Intermediate  Z 2  Mapped to the Common European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional Czech and common professional terminology. Comprehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening the		about them. Writing in a si	mple way about
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about amiliar topics. Reading and comprehension of simple texts. Improvement of professional language.  2046118   Czech -Advanced   Z   2  Wapped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czech without great 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 comprehension of popular-scientific and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046117   Czech -Advanced   Z   2  20mprehension of spoken language as well as lectures in Czech 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 currant issues and popular scientific and technical articles.  2046127   Czech - Upper Intermediate   Z   2  Understanding 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 events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  2046128   Czech - Upper Intermediate   Z   2  Wapped to the Common European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional Czech and common professional terminology. Comprehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening the	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
Additional comprehension of simple texts. Improvement of professional language.  2046118   Czech -Advanced   Z   2  Adapped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czech without great 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 comprehension of popular-scientific and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046117   Czech -Advanced   Z   2  Comprehension of spoken language as well as lectures in Czech 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 currant issues and popular scientific and technical articles.  2046127   Czech - Upper Intermediate   Z   2  2 Judderstanding 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 events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  2046128   Czech - Upper Intermediate   Z   2  Adapped to the Common European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional Czech and common professional erminology. Comprehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening the	2046125 Czech Lower Intermediate	Z	2
Adapted to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czech without great 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 comprehension of popular-scientific and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046117	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 si	mple way about
Mapped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czech without great 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 comprehension of popular-scientific and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046117	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehension of popular-scientific and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046117	2046118 Czech -Advanced	Z	2
Scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  2046117   Czech -Advanced   Z   2  Comprehension of spoken language as well as lectures in Czech 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 currant issues and popular scientific and technical articles.  2046127   Czech - Upper Intermediate   Z   2  Understanding 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 events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  2046128   Czech - Upper Intermediate   Z   2  Mapped to the Common European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional Czech and common professional terminology. Comprehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening the	Mapped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures	given in Czech without gre	at difficulties and
Comprehension of spoken language as well as lectures in Czech 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 currant issues and popular scientific and technical articles.  2046127	active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and or	omprehension of popular-s	cientific and
Comprehension of spoken language as well as lectures in Czech 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 currant issues and popular scientific and technical articles.  2046127	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.		
Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical articles.  2046127	2046117 Czech -Advanced	Z	2
Czech - Upper Intermediate   Z   2	Comprehension of spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, parti-	cipation in discussions. Exp	ressing opinions.
Understanding 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 events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  2046128	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to	echnical articles.	
Understanding 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 events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  2046128	2046127 Czech - Upper Intermediate	Z	2
events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  2046128		pics. Ability to describe exp	periences and
Czech - Upper Intermediate  Z  2  Mapped to the Common European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional Czech and common professional erminology. Comprehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening the	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.		
Mapped to the Common European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional Czech and common professional erminology. Comprehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening the		7	2
erminology. Comprehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening the			I .
			•
anowieuge teorinical language.	knowledge technical language.		-

2046119 Basic vocabulary of eve	Czech Language for Beginners I. ryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profes	Z	2
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. Understan	ding and use of ba	asic expressions
	ninology (professional language).		
2046086	French - Lower Intermediate Course	Z	2
	hat is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wr nprehension of simple texts. Improvement of professional language.	iting in a simple w	ay about familiar
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		
2046091	French - Advanced	Z	2
	Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on to	•	
	tive speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading an	nd understanding	exts concerning
	llar scientific and technical articles.	- 1	
2046090	French - Advanced en language as well as lectures in French on topics familiar to the student. Communication with native speakers, participation	Z Z	2
	en language as well as lectures in French on topics lamiliar to the student. Communication with hative speakers, participatio Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and te		expressing
2046089	French - Upper Intermediate	Z	2
	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students c		
	king about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understa		
2046088	French - Upper Intermediate	Z	2
Understanding standar	I speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abili	ty to describe exp	eriences and
events, briefly explain o	ne's opinions and plans. Reading and understanding general and technical texts.		
2046084	French - Beginners	Z	2
	hat is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wr	iting in a simple w	ay about familiar
	nprehension of simple texts. Improvement of professional language.		
2046085	French - Beginners' Course	Z	2
	Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which eaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement		
2146060	Indonesian Language Course for Exchange	Z	2 2
	iguage for Student Exchange Program to Indonesia		2
2146061	Technical Indonesian - Course I.	Z	2
	an Language for Student Exchange Program to Indonesia	_	_
2144062	Technical Indonesian - Course II.	Z,ZK	3
Basic of Indonesian La	nguage for Student Exchange Program to Indonesia	, ,	
2046078	German - Lower Intermediate Course	Z	2
	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	em. Writing in a sin	nple way about
	and comprehension of simple texts. Improvement of professional language.		
2046079	German - Lower Intermediate Course	Z	2
	Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations whic and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improveme		
2046083	German - Advanced Course	7	2
	Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in	_	<del>-</del>
	in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compre		0
	s from student's field of studies without difficulties. Grammar structures on advanced level.		
2046082	German - Advanced Course	Z	2
Comprehension of spol	en language as well as lectures in German on topics familiar to the student. Communication with native speakers, participat	on in discussions.	Expressing
opinions. Written skills.	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and te	chnical articles	
2040004		crimical articles.	
2046081	German - Upper Intermediate Course	Z	2
Mapped to the level of	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students c	Z omes across at w	ork, at school,
Mapped to the level of during free time, and ta	common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students c king about these topics. Ability to describe experiences and events, explain one s opinions and plans. Reading and understand	Z omes across at wo	ork, at school, I technical texts.
Mapped to the level of 0 during free time, and ta 2046080	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students c king about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understa German - Upper Intermediate Course	Z omes across at we anding general and Z	ork, at school, I technical texts.
Mapped to the level of of during free time, and ta 2046080 Understanding standard	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students c king about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understate German - Upper Intermediate Course a speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	Z omes across at we anding general and Z	ork, at school, I technical texts.
Mapped to the level of of during free time, and ta 2046080 Understanding standard events, briefly explain of	common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students c king about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understand German - Upper Intermediate Course I speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abiline's opinions and plans. Reading and understanding general and technical texts.	Z omes across at wo	ork, at school, I technical texts. 2 eriences and
Mapped to the level of of during free time, and ta 2046080 Understanding standard events, briefly explain of 2046076	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of king about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understand German - Upper Intermediate Course Is speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abiline's opinions and plans. Reading and understanding general and technical texts.  German - Beginners	Z omes across at wounding general and Z ty to describe exp	ork, at school, I technical texts.
Mapped to the level of of during free time, and ta 2046080 Understanding standard events, briefly explain of 2046076 Basic vocabulary of events.	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of king about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understand German - Upper Intermediate Course If speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abilities's opinions and plans. Reading and understanding general and technical texts.  German - Beginners  Tryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profes	Z omes across at wounding general and Z ty to describe exp  Z sional language)	ork, at school, I technical texts. 2 eriences and 2
Mapped to the level of oduring free time, and ta 2046080 Understanding standard events, briefly explain of 2046076 Basic vocabulary of even 2046077	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of king about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understand German - Upper Intermediate Course Is speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abiline's opinions and plans. Reading and understanding general and technical texts.  German - Beginners	Z omes across at wounding general and Z ty to describe exp  Z sional language)	ork, at school, at technical texts 2 eriences and 2
Mapped to the level of oduring free time, and ta 2046080 Understanding standard events, briefly explain of 2046076 Basic vocabulary of ever 2046077 Mapped to the level Co	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of king about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding and understanding and understanding and understanding about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability is opinions and plans. Reading and understanding general and technical texts.  German - Beginners  ryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profestigerman - Beginners	Z omes across at wounding general and Z ty to describe exp  Z sional language)	ork, at school, at technical texts 2 eriences and 2
Mapped to the level of oduring free time, and ta 2046080 Understanding standard events, briefly explain of 2046076 Basic vocabulary of ever 2046077 Mapped to the level Co	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of king about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding and understanding about these topics. Ability is speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability is speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability is speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability is speech about familiar topics, that a students of speech about familiar topics, that a students one's opinions and plans. Reading and understanding speech about familiar topics, that a students of speech about familiar topics, and understanding and understanding speech about familiar topics of speech about familiar topics and understanding and understanding speech about familiar topics of speech about familia	Z omes across at wounding general and Z ty to describe exp  Z sional language)	ork, at school, I technical texts. 2 eriences and 2
Mapped to the level of of during free time, and ta 2046080 Understanding standard events, briefly explain of 2046076 Basic vocabulary of events and the level Congeneral scientific terminal 2046161	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of king about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding and understanding and understanding and understanding and understanding general and technical texts.  German - Beginners  ryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professionan) and plans and plans. Reading and understanding and use of basic expressions of general scientific terminology (professionan) are spoken and written form. Understanding and use of basic expressions of general scientific terminology (professionan) are spoken form. Understanding ology (professional language).	Z omes across at we unding general and Z ty to describe exp  Z sional language) Z and use of basic exp	ork, at school, I technical texts.  2 eriences and  2 expressions of
Mapped to the level of oduring free time, and ta 2046080 Understanding standard events, briefly explain of 2046076 Basic vocabulary of events and the level Congeneral scientific terminal 2046161	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of king about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding a speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abilitie's opinions and plans. Reading and understanding general and technical texts.  German - Beginners ryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professionan - Beginners ramework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding ology (professional language).  Presentations in English	Z omes across at we unding general and Z ty to describe exp  Z sional language) Z and use of basic exp	ork, at school, I technical texts 2 eriences and 2 expressions of
Mapped to the level of oduring free time, and ta 2046080 Understanding standard events, briefly explain of 2046076 Basic vocabulary of events are events events of events are events of events of events are events of events are events of events of events are events of	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of king about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding appears a speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abilities's opinions and plans. Reading and understanding general and technical texts.  German - Beginners  ryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profestiment - Beginners)  mmon European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding ology (professional language).  Presentations in English  resent in English on technical topics, with a possible co-operation with specialized departments.	Z omes across at we anding general and Z ty to describe exp  Z sional language) Z and use of basic of Z	ork, at school, I technical texts 2 eriences and 2 expressions of
Mapped to the level of oduring free time, and ta 2046080 Understanding standard events, briefly explain of 2046076 Basic vocabulary of events are to the level Congeneral scientific terminal 2046161 Preparing students to possible to the level to possible to the level to possible the level to the level to possible the level to possible the level to the level t	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of king about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding appears a speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abilities's opinions and plans. Reading and understanding general and technical texts.  German - Beginners  ryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profest German - Beginners  mmon European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding ology (professional language).  Presentations in English  resent in English on technical topics, with a possible co-operation with specialized departments.  Presentations in Czech	Z omes across at we unding general and Z ty to describe exp  Z sional language)  Z and use of basic of	ork, at school, I technical texts 2 eriences and 2 expressions of
Mapped to the level of oduring free time, and ta 2046080 Understanding standare events, briefly explain of 2046076 Basic vocabulary of events are events events, briefly explain of 2046077 Mapped to the level Congeneral scientific terminal 2046161 Preparing students to preparing students to great 2046166 Preparing students to great events are events.	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of king about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding appeach about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abilitie's opinions and plans. Reading and understanding general and technical texts.  German - Beginners ryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profest German - Beginners mon European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding ology (professional language).  Presentations in English resent in English on technical topics, with a possible co-operation with specialized departments.  Presentations in Czech ve presentations in English on technical topics, with a possible co-operation with specialized departments.	Z omes across at we anding general and Z ty to describe exp  Z sional language) Z and use of basic of Z Z	ork, at school, at technical texts 2 eriences and 2 expressions of 2 2 2
Mapped to the level of oduring free time, and ta 2046080 Understanding standare events, briefly explain of 2046076 Basic vocabulary of events are events events, briefly explain of 2046077 Mapped to the level Congeneral scientific terminal 2046161 Preparing students to preparing students to graph 2046162 Preparation for present 2046164	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of king about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding general and technical texts.  German - Beginners  ryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professory professory professor	Z omes across at we anding general and Z ty to describe exp  Z sional language) Z and use of basic of Z	ork, at school, at technical texts.  2 periences and  2 perpensions of  2 2
Mapped to the level of oduring free time, and ta 2046080 Understanding standare events, briefly explain of 2046076 Basic vocabulary of events are events as a construction of the level Congeneral scientific terminal 2046161 Preparing students to preparing students to graph 2046162 Preparation for present 2046164	common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of king about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding general and technical texts.  German - Beginners  ryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professong forman - Beginners  mon European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding ology (professional language).  Presentations in English  resent in English on technical topics, with a possible co-operation with specialized departments.  Presentations in Czech  ve presentations in German  ng technical topics in German, possibly in cooperation with specialized departments.	Z omes across at we anding general and Z ty to describe exp  Z sional language) Z and use of basic of Z Z	ork, at school, at technical texts.  2 periences and  2 pexpressions of  2 2  2 2  2 2

	Presentations in Spanish	Z	2
Preparation for pres	senting technical topics in Spanish, possibly in cooperation with specialized departments.		
2046137	Russian - Lower Intermediate Course	Z	2
Understanding clea	rly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. V	Vriting in a simple w	ay about familia
topics. Reading and	comprehension of simple texts. Improvement of professional language.		
2046138	Russian - Lower Intermediate Course	Z	2
Mapped to the level	of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a	student meets at scl	nool or in his/he
free time and speak	king about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of pro	fessional language.	
2046141	Russian - Advanced	Z	2
Comprehension of	spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, particip	ation in discussions.	Expressing
opinions. Written sk	ills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and	technical articles.	_
2046142	Russian - Advanced	Z	2
Mapped to the leve	l of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian or	n topics familiar to th	ne student.
Communication with	n native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading	and understanding	texts concerning
currant issues and	popular scientific and technical articles.		
2046140	Russian - Upper Intermediate	Z	2
Mapped to the leve	of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a studen	t meets at work, at s	school, during
free time, and talking	g about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and unders	standing general and	technical texts
2046139	Russian - Upper Intermediate	Z	2
Understanding star	dard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. At	oility to describe exp	eriences and
events, briefly expla	in one's opinions and plans. Reading and understanding general and technical texts.		
2040420			
2046136	Russian - Beginners	Z	2
	Russian - Beginners of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understar		_
Mapped to the level			_
Mapped to the level of general scientific	of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understar		_
Mapped to the level of general scientific 2046135	of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understarterminology (professional language)	nding and use of bas	sic expressions
Mapped to the level of general scientific 2046135	of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understarterminology (professional language)  Russian - Beginners  everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professional language)	nding and use of bas	sic expressions
Mapped to the level of general scientific 2046135 Basic vocabulary of 2046099	of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understar terminology (professional language)  Russian - Beginners	ding and use of bas  Z essional language)	sic expressions 2
Mapped to the level of general scientific 2046135 Basic vocabulary of 2046099 Mapped to the level	of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understarterminology (professional language)  Russian - Beginners  everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professional language)  Spanish - Lower Intermediate	anding and use of base    Z essional language) Z student meets at sch	sic expressions 2
Mapped to the level of general scientific 2046135 Basic vocabulary of 2046099 Mapped to the level free time and speak	of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understarterminology (professional language)  Russian - Beginners  everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professions)  Spanish - Lower Intermediate  of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a string about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professions of the profession of the prof	anding and use of base    Z essional language) Z student meets at sch	sic expressions 2
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Mapped to the level of general scientific 2046135 Basic vocabulary of 2046099 Mapped to the level free time and speak 2046098 Understanding clea topics. Reading and 2046096 Aim:Understanding	of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understarterminology (professional language)  Russian - Beginners  everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professional language)  Spanish - Lower Intermediate  of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a sking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  Spanish - Lower Intermediate  rly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. We comprehension of simple texts. Improvement of professional language.  Spanish - Beginners  clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the ding and comprehension of simple texts. Improvement of professional language.	essional language)  Z essional language)  Z student meets at sch fessional language.  Z Writing in a simple w	2 2 2 2 2 3 3 3 3 4 4 4 5 5 6 7 7 8 7 8 8 8 8 9 8 9 8 9 8 9 8 9 8 9 8
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### List of courses of this pass:

Code	Name of the course	Completion	Credits
2011009	Mathematics III	Z,ZK	5
	An introductory course in ordinary differential equation and infinite series.		
2011021	Constructive Geometry	Z,ZK	6
	The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relation	ons.	•
2011049	Numerical Mathematics	Z,ZK	4
Numerical solution	n of systems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical	solution of ordinar	y differential
	equations, initial and boundary value problems. Numerical solution of basic linear partial differential equations by finite difference	method.	
2011056	Mathematics I	Z,ZK	8
In the course, great	ater emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connection	s between concep	ts. Students
will also get to know	w the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: e of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.	igennumbers and e	eigenvectors
2011062	Matematika II.	Z,ZK	8
Open and closed	d set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differenti	ial operators div (d	ivergence)
and curl (rotation).	Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral,	Fubini theorem. Tra	nsformation
	ar, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Greer	•	
field, independer	nce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector	r field through a si	urface. The
	Gauss-Ostrogradskij theorem.		
2012035	Algorithmization and Programming Fundamentals	KZ	4
	MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Matri		•
	Input and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Syste		
and functions. S	Structure of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. St	•	
-11	ns: minimum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of s	systems of linear e	duations.
simple program 2012037 2012091	Computer Graphics Project	KZ KZ	3

2013991	Bachelor Thesis	Z	4
2016007	Mathematics I Seminar	Z	2
		ZK	
201A009	Mathematics III.A		2
201A021	Constructive Geometry A  The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relation	ZK ons.	3
201A049	Numerical Mathematics A	ZK	2
201A056	Mathematics I.A	ZK	4
	Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable		1
201A062	Mathematics II.A	ZK	4
f integrals to polar, ield, independence 2021025 araday's law of elector f radiation with mapeetra, x-rays, ;lase 2021041 inematics and dynawaves. Fluid mediculators. Magnetic 2026016 202A025 araday's law of elector f radiation with mapeetra, x-rays, ;lase	nction given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Greer of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector Gauss-Ostrogradskij theorem.  Physics II.  Iromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electric. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and are Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiments of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic prohanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Confield. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indire measurements of 11 various experiments related to the lectures.  Physics - Seminar  The subject is mainly meant for high-school students for repetition of high-school physics.  Physics II.A  Tomagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electric. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and for Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiments.	a's theorem. A pot or field through a so field to a so field through a	dential vectors are surface. The surface. The surface. The surface. The surface is surface. The surface is surface. The surface is surface. The surface is surface is surface is surface. The s
202A041	Physics I.	ZK	3
	mics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic pro		_
2041061 apped to the Comn	measurements of 11 various experiments related to the lectures.  English-Bachelor Exam  on European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult	Z,ZK ties, to take part in	2 discussion
	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
apped to the Comn	on European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	ties, to take part in	discussio
2041063	French - Bachelor Exam /FME	Z,ZK	2
	non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.		1
2041064	Spanish - Bachelor Exam / FME	Z,ZK	2
l l	on European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult	l i	1
apped to the Comin		lies, to take part in	uiscussio
0044005	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	7.714	
2041065	Russian - Bachelor Exam / FME	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	ties, to take part in	discussio
	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.		
		_	
2046068	English - Beginners	Z	2
	English - Beginners oulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (p	_	I
Aim: Basic vocal 2046069 apped to the Comr	bulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (page 12 to Figure 13 to Figure 14 to Figure 14 to Figure 15 to Figure 15 to Figure 15 to Figure 15 to Figure 16 to Figur	professional langu Z g and use of basic	age). A1
Aim: Basic vocal 2046069 apped to the Comr 2046070	oulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (page 12) English - Beginners  non European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding	z Z g and use of basic	2 expression 2
Aim: Basic vocal 2046069 apped to the Comr 2046070 im: Understanding	English - Beginners non European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding of general scientific terminology (professional language).  English - Lower Intermediate clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.	z Z g and use of basic	2 expression 2
Aim: Basic vocal 2046069 apped to the Comr 2046070 im: Understanding 2046071 lapped to the Com	English - Beginners non European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding of general scientific terminology (professional language).  English - Lower Intermediate clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	professional langu Z g and use of basic Z Writing in a simpl Z student meets eith	2 e way about 2 ner at scholars.
Aim: Basic vocal 2046069 apped to the Comr 2046070 im: Understanding 2046071 lapped to the Com or at his/her free ti	English - Beginners  non European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding of general scientific terminology (professional language).  English - Lower Intermediate  clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.  English - Lower Intermediate  mon European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which a standard speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improvement	professional langu Z g and use of basic Z Writing in a simpl Z student meets eith	2 e way about 2 ner at scholars.
Aim: Basic vocal 2046069 apped to the Comr 2046070 im: Understanding 2046071 lapped to the Com or at his/her free ti 2046072	English - Beginners  non European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding of general scientific terminology (professional language).  English - Lower Intermediate  clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.  English - Lower Intermediate  mon European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which a standard spoken language about everyday spoken languag	professional languary Z g and use of basic Z Writing in a simpl Z student meets either of professional Z glish speech and	age). A1 2 c expression 2 e way about 2 ner at scholanguage 2
Aim: Basic vocal 2046069 apped to the Comr 2046070 aim: Understanding 2046071 dapped to the Com or at his/her free ti 2046072 ne aim is to extend 2046073 Mapped to the Com	English - Beginners  non European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding of general scientific terminology (professional language).  English - Lower Intermediate  clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.  English - Lower Intermediate  mon European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which a seme and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improvement of professional simple simple simple texts. Improvement of professional simple si	Torofessional language of the second of the	age). A1 2 c expression 2 e way abc 2 ner at scholanguage 2 conversat 2 profession
Aim: Basic vocal 2046069 apped to the Comr 2046070 aim: Understanding 2046071 dapped to the Comor at his/her free ti 2046072 ne aim is to extend 2046073 Mapped to the Comrminology. Compre	English - Beginners  non European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding of general scientific terminology (professional language).  English - Lower Intermediate  clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.  English - Lower Intermediate  mon European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which a seme and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improvement english - Upper Intermediate  language skills taking into consideration professional English and common professional terminology. Comprehension of standard English - Upper Intermediate	Torofessional language of the second of the	age). A1  2 c expression  2 e way about  2 ner at scholanguage  2 conversati
Aim: Basic vocal 2046069 lapped to the Comr 2046070 Aim: Understanding 2046071 Mapped to the Com or at his/her free ti 2046072 he aim is to extend 2046073 Mapped to the Con erminology. Compre	English - Beginners  non European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding of general scientific terminology (professional language).  English - Lower Intermediate  clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.  English - Lower Intermediate  mon European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which a sime and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improvement English - Upper Intermediate  anguage skills taking into consideration professional English and common professional terminology. Comprehension of standard English - Upper Intermediate  English - Upper Intermediate  English - Upper Intermediate  Finglish - Upper Intermediate  English - Upper Intermediate	professional languary Z g and use of basic Z Writing in a simpl Z student meets either of professional Z glish speech and B1. Z sh and common pate level. Broaden	age). A1 2 2 expression 2 e way abc 2 ner at scholanguage 2 conversat 2 professionaring gramn 2 n advance

2046075	English - Advanced	Z	2
	ommon European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in Eng	-	
and active particip	pation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay, reading and comprehen	sion of popular-sc	ientific and
2046076	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.	7	
2046076	German - Beginners abulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (pr	Z   rofessional langua	2
2046077	German - Beginners	7	2
	el Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding and	_	
mapped to the let	general scientific terminology (professional language).	a doo or bacie onp.	
2046078	German - Lower Intermediate Course	Z	2
	og clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	ا Writing in a simple	way about
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046079	German - Lower Intermediate Course	Z	2
* *	of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a s		
	e time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvemen		
2046080	German - Upper Intermediate Course	Z	2
Oriderstanding st	andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability t events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.	to describe experie	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-	ı	
	nd talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding		
2046082	German - Advanced Course	Z	2
Comprehension	of spoken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participation	n in discussions. E	xpressing
opinions.\	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a	nd technical article	es.
2046083	German - Advanced Course	Z	2
	el of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in Ge	•	
and active participa	ation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compreher	nsion of popular-so	cientific and
2046004	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.	7	2
2046084	French - Beginners  arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	- 1	
Oridorstariding cice	topics. Reading and comprehension of simple texts. Improvement of professional language.	iii a siiripie way at	Jour lamillar
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 s	student meets at s	chool or in
his/her free tim	ne and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement		
	and oppositing about them. Thing in a employmay about laminal topics. Reading and completelesion of simple texts. Improvement	of professional lan	guage.
2046086	French - Lower Intermediate Course	of professional lan	guage.
	French - Lower Intermediate Course arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	Z	2
Understanding clea	French - Lower Intermediate Course arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing topics. Reading and comprehension of simple texts. Improvement of professional language.	Z in a simple way ab	2 pout familiar
Understanding clear 2046087	French - Lower Intermediate Course arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing topics. Reading and comprehension of simple texts. Improvement of professional language.  French - Lower Intermediate Course	Z in a simple way ab	2 pout familiar
Understanding clear 2046087 Mapped to the lev	French - Lower Intermediate Course arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing topics. Reading and comprehension of simple texts. Improvement of professional language.  French - Lower Intermediate Course rel of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a second course.	Z in a simple way ab  Z student meets at s	2 pout familiar 2 chool or in
Understanding clear 2046087  Mapped to the leven his/her free times	French - Lower Intermediate Course arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing topics. Reading and comprehension of simple texts. Improvement of professional language.  French - Lower Intermediate Course rel of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a see and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	Z in a simple way ab Z student meets at s of professional lan	2 chool or in guage.
2046087 Mapped to the lev his/her free tim	French - Lower Intermediate Course arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing topics. Reading and comprehension of simple texts. Improvement of professional language.  French - Lower Intermediate Course rel of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a see and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of the speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of the speaking about them.	Z in a simple way at  Z student meets at s of professional lan  Z	2 chool or in iguage.
2046087 Mapped to the lev his/her free tim	French - Lower Intermediate Course arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing topics. Reading and comprehension of simple texts. Improvement of professional language.  French - Lower Intermediate Course rel of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a see and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	Z in a simple way at  Z student meets at s of professional lan  Z	2 chool or in iguage.
2046087 Mapped to the lev his/her free tim	French - Lower Intermediate Course arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing topics. Reading and comprehension of simple texts. Improvement of professional language.  French - Lower Intermediate Course rel of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a since and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of French - Upper Intermediate  andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.	Z in a simple way at  Z student meets at s of professional lan  Z	2 chool or in iguage.
2046087 Mapped to the lev his/her free tim 2046088 Understanding sta	French - Lower Intermediate Course arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing topics. Reading and comprehension of simple texts. Improvement of professional language.  French - Lower Intermediate Course rel of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a sepaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of the sepaking about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability the service of the sepaking about these topics. Ability the service of the	Z in a simple way at  Z student meets at s of professional lan  Z to describe experie	2 chool or in iguage. 2 ences and
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2046118	Czech -Advanced	Z	2
lapped to the level	of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Cze	ch without great	difficulties and
active participation	n in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehension accientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.	sion of popular-s	cientific and
2046119	Czech Language for Beginners I.	Z	2
Basic vocab	oulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (	professional lang	uage)
2046120	Czech Language for Beginners II.	Z	2
lapped to the Comr	mon European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understandin	ng and use of bas	sic expression
2046125	of general scientific terminology (professional language).  Czech Lower Intermediate	7	2
	clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them	. –	
g	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		,
2046126	Czech Lower Intermediate	Z	2
im: Understanding	clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them	. Writing in a sim	ple way abou
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046127	Czech - Upper Intermediate	Z	2
Understanding star	ndard 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 exp	enences and
2046128	Czech - Upper Intermediate	Z	2
	mon European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional C	_	
terminology. Comp	orehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on interr	nediate level. Bro	padening the
	knowledge technical language.		
2046135	Russian - Beginners	Z	2
	oulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (	professional lang	
2046136	Russian - Beginners	<u>Z</u>	2
napped to the level	of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understanding of general scientific terminology (professional language)	g and use of basi	c expression:
2046137	Russian - Lower Intermediate Course	7	2
l l	ly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writin	_	l l
3	topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046138	Russian - Lower Intermediate Course	Z	2
anned to the level	of Common European Framework of Reference: A2 Understanding electly what is analysis about averyday situations which a stude		ol or in hie/h
* *	of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a stude		
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free time and	d speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of  Russian - Upper Intermediate  Indianal speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	professional lang	guage.
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free time and 2046139   Understanding star 2046140   Mapped to the leve see time, and talking 2046141   Comprehension of opinions. W 2046142   Mapped to the leve ommunication with 2046155   2046166   2046164   2046165   2046166   2046166   2131002	d speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of Russian - Upper Intermediate  Indard 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.  Russian - Upper Intermediate  If of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student may about these topics. Ability to describe experiences and events, briefly explain one 's opinions and plans. Reading and understand Russian - Advanced  If spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation in the student of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to read a speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical articles.  Russian - Advanced  Russian - Advanced  Full of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to currant issues and popular scientific and technical articles.  Fullish Conversation  Improving communicative skills in speaking on general topics and general technical topics.  Fullish Conversation  Improving communicative skills in speaking on general topics and general technical topics.  Presentations in English  Preparation for presenting technical topics, with a possible co-operation with specialized departments.  Presentations in German, possibly in cooperation with specialized departments.  Presentations in French language  Preparation for presenting technical topics in French, possibly in cooperation with specialized departments.  Presentations in Russian  P	professional lang Z y to describe exp  Zeets at work, at sing general and to a compare the compare to the compare	guage.  2 eriences and  2 cchool, during echnical text  2 . Expressing ticles.  2 the student. axts concerning  2 2  2 2  2 2  4
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2131512	Machine Elements and Mechanisms I.	Z,ZK	6
, ,	elements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, k	eys). Mechanical tra	
	on, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloade	_	
pressed, splined ar	nd key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple asser	nbly units is also in	dispensable
	seminar work.		
2133013	Engineering Design III.	Z	2
	Design of assembly unit (draft drawing, detail drawing, assembly drawing, technical report)		1
2133014	Engineering Design IV.	Z	2
2133025	Design	Z	4
Design	n, design calculations and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft coup	ings and clutches.	,
2141504	Electric Circuits and Electronics	Z,ZK	4
	heory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of	0,	٠, ١
Introduction into	electronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilized		perational
	amplifier). Analogue and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, micropro		
2141505	Electrical machines and drives	Z,ZK	4
	ectrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Trans		
	mer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed us machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characte	•	
Control. Synchrono	us machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque character.  Low-voltage distribution system.	ristic. Low-voitage i	instruments.
2144062	Technical Indonesian - Course II.	Z,ZK	3
2144002	Basic of Indonesian Language for Student Exchange Program to Indonesia	Z,ZN	3
2146060	Indonesian Language Course for Exchange	Z	2
2140000	Basic of Indonesian Language for Student Exchange Program to Indonesia		
2146061	Technical Indonesian - Course I.	Z	2
2140001	Second part of Indonesian Language for Student Exchange Program to Indonesia		2
2152091	Departmental Project	KZ	2
2153005	Fundamentals of Energy Conversions	Z	1
2153991	Bachelor Thesis	Z	4
2181026	Momentum, Mass and Heat Transfer	Z,ZK	5
	transport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanica		
time distributions in	n continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and the	rmai radiation. Mult	ticomponent
2402040	systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.	1/7	
2182019	Chemistry	KZ	3
	ry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and propertie n, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and bioche		
priase equilibrium	oriented upon the material properties measurement.	illistry. Laboratory	practice is
2182091	Project	KZ	2
2102091	Absolvent se seznámí se základy oboru Procesní technika.	IXZ	1 2
2183991	Bachelor Thesis	Z	4
2213991	Bachelor Thesis	Z	4
2311101		Z,ZK	4
	Mechanics I. with the basic concepts of statics. There are described the methods of solution of equilibrium of particles and rigid bodies and their sy	1 '	
Wednames rueals	There are introduced the methods of description of position and motion of particles and rigid bodies.	sterns with and with	nout motion.
2311102	Mechanics II.	Z,ZK	4
	rivections in: and of rigid bodies. Transformation matrix. Kinematics of concurrent movements. Motion: translation, rotation, general planar motion, s		
	ion. Composition of mechanisms. Basic planar mechanisms. Analytical methods in kinematics of mechanisms - Trigonometric and vec	="	
	in kinematics. Basic theory of gearing. Transmition mechanisms with geers. Strutting and seezing in mechanisms. Cable mechanisms	-	
2311107	Mechanics III.	Z,ZK	7
	s with the basic concepts of dynamics. Methods of solving the dynamics of mass particle and body motion and their systems are des	1 '	
	and solving vibrations of systems.		-
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 t		processing,
	technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of mater	ials.	
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, defo	rmation, recrystalliz	zation and
fracture of mate	erials, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, i	ron-carbon phase of	diagram.
2322091	Project	KZ	2
On the basis of the	preliminary submission of a bachelor thesis the students, under supervision of their supervisors, prepare a review summarizing and	evaluating the studi	ied literature
with particular e	mphasis on experimental technologies which can be applied in their bachelor theses. They can also mention a planned experiment of	or evaluate hitherto	obtained
	knowledge or results.		
2323991	Bachelor thesis	Z	4
	Development of the bachelor thesis on an assignment under the supervision.		
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,
000000	heating-up. Cutting. Cold and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. Brazing. Surface treatmen		
2332091	Project	KZ	2
2333038	Fundamentals of Technology I.	Z	3
	ses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, tech		
iron and steel. Ca	sting: modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming tec	nnology. Hot and co	old forging.

Free and drop for	orging. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of welding. welding and arc welding with coated electrodes. Thermal cutting.	ding. Fusion weldir	ng: Flame
2333991	Bachelor Thesis	Z	4
2341014	Technology II.	Z,ZK	5
mechanics of chip	formation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining econor	,	of processes.
	programming of manufacture. Engineering metrology. Assembly techniques. Introduction to process planing.		
2342091	Project	KZ	2
	Work on specialized tasks.		'
2352091	Specialization Project	KZ	2
2362091	Project	KZ	2
2363991	Bachelor Thesis	Z	4
2371047	Automatic Control	Z,ZK	5
	lers are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automat	,	1
	le logic controllers. Some seminaries are arranged in laboratories where practical skills and control engineering methods are trained.  MATLAB software as a common platform of control engineers.	Students begin to	work with
2372041	Computer Support for Study		
	ces students into creating technical and professional documents on computers or Web and into realizing technical computations with t al skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating techni	•	
			1
2372083	Measurement in Engineering sor principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and	KZ	3
Overview or sen	instruments.	verification of mea	surement
2372091	Project	KZ	2
2072001	An individual project from the branch of specialisation, which student will study on his/her magister level	112	_
2373991	Bachelor Thesis	Z	4
2070001	Each student will solve his individual theme under guiding of his individual supervising department specialist. Result is his/her bache	l	
2381054	Management and Economics of the Enterprise	Z,ZK	4
	inded to teach the students of the Faculty of Mechanical Engineering the basic economic starting points necessary for technical reasonin	,	ı n understand
•	ships between economic quantities costs - revenues, expenses - incomes and other basic economic terms. The goal is for the audience	•	
with economists i	n organizations, every product or service is valued at a selling price and therefore it is necessary to understand the simple costing of	products and serv	ices. Every
technician will ence	ounter reports and should understand the basic structure of financial statements. As a future manager, he will compile and approve th	e operating budge	t. In the field
of management,	they will learn basic managerial functions and their content. Furthermore, they will learn how to use network analysis in project managerial	gement. For decis	ion-making
	purposes, they will learn the applications of multi-criteria decision-making. The basics of marketing and strategic management will be	introduced.	
2383001	Fundamentals of Law	Z	2
	n legal system is a necessary part of professional equipment of each expert with university degree. The aim of this course is to provid		•
	ources of law and system of law (branch of law), using tutorials, lectures, specialised literature and significant legal regulations. It is no	•	
-	ons, that will be regularly in touch with, especially during their professional career and to learn how to work with the collection of laws.		
leads students to k	now some practical habits and processes while putting the law on, especially in domain of contracts and other important legal relation	ships and to make	them ready
0000000	to prepare professional presentations and to understand basic structures between law and engineering		T 0
2383009	Communication and Dealing with People	Z	2
Human communi	cation represents an irreplaceable phenomenon in human activity, as it is present in practically all of his activities. The same applies (v	with specific modif	rications) to
	the activities of managers. So you can't not communicate - you can only communicate badly, well and excellently.		

For updated information see <a href="http://bilakniha.cvut.cz/en/FF.html">http://bilakniha.cvut.cz/en/FF.html</a> Generated: day 2025-07-04, time 03:34.