#### 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

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	Z,ZK	5	3P+15C+05L	*	Р
2182019	Chemistry Radek Šulc, Martin Dostál, Vojt ch B lohlav, Jan Sko ilas, Adam Krupica, Filip Randák 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 František Lopot	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  Jaroslav Novák	Z,ZK	4	2P+06C+14L	*	Р
2021041	Physics I.	Z,ZK	7	4P+1L	*	Р
2021025	Physics II.	Z,ZK	4	1P+2L	3	Р
2133025	Design František Lopot	Z	4	0P+4C	*	Р
2011021	Constructive Geometry	Z,ZK	6	3P+2C	*	Р
2381054	Management and Economics of the Enterprise	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 Stanislav Kra mar	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. Václav Bauma	Z,ZK	4	2P+2C	*	Р

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2322029	Materials Science I.  Jana Sobotová	KZ	3	2P+1L	2	Р
2321039	Materials Science II. Ji í Cejp, Jakub Horník, Jana Sobotová, Elena ižmárová, Eliška Gal íková, Pavlína Hájková, Jakub Horváth, Stanislav Krum, Vladimír Mára, Jana Sobotová Jana Sobotová (Gar.)	Z,ZK	4	2P+2L	*	Р
2011049	Numerical Mathematics Petr Svá ek	Z,ZK	4	2P+2C	4	Р
2012037	Computer Graphics	KZ	3	1P+1C	*	Р
	Computer Support for Study Vladimír Hlavá	KZ	3	1P+1C	*	Р
2181026	Momentum, Mass and Heat Transfer	Z,ZK	5	3P+1C	*	P
	Engineering Design II	Z,ZK	4	2P+3C	2	Р
2133013	Engineering Design III. Št pán Tichý, Jan Hoidekr, Jan Kanaval, František Lopot, David Skalický, Roman Uhlí <b>Jan Kanaval</b> Jan Kanaval (Gar.)	Z	2	0P+2C	Z	Р
	Engineering Design IV. František Lopot	Z	2	0P+2C	L	Р
	Measurement in Engineering Martin Novák, Vladimír Hlavá Martin Novák Martin Novák (Gar.)	KZ	3	1P+0C+2L	*	Р
0004000	Technology I.	Z,ZK	5	2P+2C	*	Р
	Technology II.	Z,ZK	5	2P+0C+2L	*	Р
2012035	Algorithmization and Programming Fundamentals  Petr Svá ek	KZ	4	1P+2C	*	Р
2153005	Fundamentals of Energy Conversions	Z	1	1P+1C	*	Р
2383001	Fundamentals of Law	Z	2	1P+1C	*	Р
pro i od 1 do 6 2371047 Automatic controllers are impo	courses of this group of Study Plan: Code=12B-KMENP TZI STORMET CONTROL  ornatic Control  ortant part of many industrial processes. The goal of this course is to introduce studeners of control contr	nts into basic kno	owledge of	Z automatic con	,ZK htrol theory a	5 and practice
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2371047 Auto Automatic controllers are impo- like transfer functions, open ve- via programmable logic contro- MATLAB software as a commo- 2182019 Che General chemistry from the po- phase equilibrium, chemical re- oriented upon the material pro- 2131512 Mac Joints and joining elements (sc (belt, chain, friction, gear drive- pressed, splined and key joints seminar work. 2131026 Mac Preliminary design, design calc and fittings. 2141504 Elec Introduction into theory of elec Introduction into theory of elec Introduction into electronics. P amplifier). Analogue and digita 2141505 Elec AC el. curcuits. Electrical power 3-phase transformer, operating control. Synchronous machine Low-voltage distribution syster 2021041 Phys Kinematics and dynamics of a waves. Fluid mechanics. Temp insulators. Magnetic field. Mag	comatic Control cortant part of many industrial processes. The goal of this course is to introduce studer cortant part of many industrial processes. The goal of this course is to introduce studer cortant part of many industrial processes. The goal of this course is to introduce studer cortant part of many industrial processes.  Control cortant part of many industrial processes.  Cortant part of control engineers.  Cortant part of control engineers.  Cortant part of view of mechanical and process engineering. Physical chemistry forms 2/3 of the cortant part of view of mechanical and process engineering. Physical chemistry forms 2/3 of the cortant part of view of mechanical and process engineering. Physical chemistry forms 2/3 of the cortant part of view of mechanical and process engineering. Physical chemistry forms 2/3 of the cortant part of view of mechanisms 1/3 is devoted to organic chemistry (hy cortant part of view of mechanisms I. Cortant part of view of mechanisms I. Cortant part of view of mechanisms II. Cortant part of view of vi	nts into basic known as systems. The coll engineering me the course (structed or carbons, polythe of feathers, pin asks with motion hine elements are the circuits with the circuits with the course in circuits with the circuit w	owledge of purse also of thods are to ture and provided and provided as, tenons, of screws, produced the accumulative of the accumulative accumulati	automatic conconcentrates of trained. Studer Irained. Studer Irained I	,ZK   ntrol theory a on logic contents begin to the segin the segi	5 and practice trol and contro work with  3 odynamics, practice is  6 transmissions clamped, indispensable  3 eir accessories  4 and Energy. perational  4 construction, tic, speed te instruments  7 s. Oscillations luctors,
2371047 Auto Automatic controllers are impore like transfer functions, open vere via programmable logic control MATLAB software as a commod 2182019 Che General chemistry from the porphase equilibrium, chemical resoriented upon the material professed, splined and key joints seminar work.  2131512 Mac 2131026 Mac 2181026 Mac 2181026 Mac 2181026 Preliminary design, design calcand fittings.  2141504 Elector Introduction into theory of elector Introdu	comatic Control cortant part of many industrial processes. The goal of this course is to introduce student parts of many industrial processes. The goal of this course is to introduce student parts of control parts of control parts. Some seminaries are arranged in laboratories where practical skills and control on platform of control engineers.  Semistry Dint of view of mechanical and process engineering. Physical chemistry forms 2/3 of the eactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hypoperties measurement.  Chine Elements and Mechanisms I. Corewed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with uses). Seminars are devoted to practical individual solution of simple design projects - tests between shafts and hubs and tasks with welded and riveted joints. Sketching of machine Elements and Mechanisms II  Idulations and aplication of axles and shafts, sliding and rolling bearings, shaft connected cricial circuits, analysis special types of electrical circuits as DC and AC. Transient state principle and typical parameters of basic semiconductor components. Application in elacticitis. Principle of analogue and digital signal processing. Logical circuits, converted and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hygic conditions, rated (scheduled) values. Induction machine, principle, construction, opess. DC-machines, principle, parameters, operating conditions, construction, starting, sim.  Sics I.  In particle motion. Principle of conservation of energy. System of particles, centre of machine materials. Laboratories - accuracy of measurements, systematic and random energements.	nts into basic known as systems. The coll engineering me the course (structed or carbons, polythe of feathers, pin asks with motion hine elements are the circuits with the circuits with the course in circuits with the circuit w	owledge of purse also of thods are to ture and provided and provided as, tenons, of screws, produced the accumulative of the accumulative accumulati	automatic conconcentrates of trained. Studer Irained. Irained	,ZK   ntrol theory a on logic contents begin to the segin the segi	5 and practice trol and contro work with  3 odynamics, practice is  6 transmissions clamped, indispensable  3 eir accessories  4 and Energy. perational  4 construction, etic, speed te instruments  7 s. Oscillations luctors,

2133025

2011021

Design

Constructive Geometry

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.

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

The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.

4

6

Z,ZK

2381054	Management and Economics of the Enterprise	Z,ZK	4
=	to teach the students of the Faculty of Mechanical Engineering the basic economic starting points necessary for technical reason	-	
·	petween economic quantities costs - revenues, expenses - incomes and other basic economic terms.The goal is for the audic nizations. every product or service is valued at a selling price and therefore it is necessary to understand the simple costing o		
<del>-</del>	r reports and should understand the basic structure of financial statements. As a future manager, he will compile and approve	-	· ·
	ill learn basic managerial functions and their content. Furthermore, they will learn how to use network analysis in project man		- 1
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
_	mphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connect		
	procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas omial, integral as a limit function, integration of some special functions.	s: eigennumbers a	and eigenvectors
2011062	Matematika II.	Z,ZK	8
	pundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differen		
•	ion given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integr	· ·	
	ndrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Gre	-	
•	line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vec	tor field through a	a surface. The
Gauss-Ostrogradskij the 2011009	Mathematics III	Z,ZK	5
	n ordinary differential equation and infinite series.	Ζ,ΖΝ	5
2311101	Mechanics I.	Z,ZK	4
	he basic concepts of statics. There are described the methods of solution of equilibrium of particles and rigid bodies and their		•
There are introduced the	e methods of description of position and motion of particles and rigid bodies.		
2311102	Mechanics II.	Z,ZK	4
· · · · · · · · · · · · · · · · · · ·	of rigid bodies. Transformation matrix. Kinematics of concurrent movements. Motion: translation, rotation, general planar motion	-	
-	Composition of mechanisms. Basic planar mechanisms. Analytical methods in kinematics of mechanisms - Trigonometric and v	ector method. Gra	aphical methods
	ory of gearing. Transmition mechanisms with geers. Strutting and seezing in mechanisms. Cable mechanisms.	V7	
2322029	Materials Science I.  e of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, deformaterials.	KZ	3 Illization and
	ucture and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, iro	=	
2321039	Materials Science II.	Z,ZK	4
	urgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and	,	nical processing,
technical iron-carbon all	oys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materials.		
2011049	Numerical Mathematics	Z,ZK	4
•	stems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numer	ical solution of ord	linary differential
2012037	undary value problems. Numerical solution of basic linear partial differential equations by finite difference method.	KZ	3
2372041	Computer Graphics Computer Support for Study	KZ	3
	tudents into creating technical and professional documents on computers or Web and into realizing technical computations wi		
	reating 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
•	ort phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechanic		
	inuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and t	hermal radiation.	Multicomponent
	by molecular diffusion, convection, with chemical reactions and interphase mass transfer.	7.71/	4
2131002	Engineering Design II Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surfa	Z,ZK	4
	ancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice thei		
2133013	Engineering Design III.	Z	2
	(draft drawing, detail drawing, assembly drawing, technical report)	ı	
2133014	Engineering Design IV.	Z	2
2372083	Measurement in Engineering	KZ	3
	ciples for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and	verification of me	easurement
instruments.	- · · · ·		
2331068	Technology I.	Z,ZK	5 Sami products
	etals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of fo d and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. Brazing. Surface treatments.	Jiming processes	. Semi-products,
2341014	Technology II.	Z,ZK	5
	tion, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining eco		
•	cture. Engineering metrology. Assembly techniques. Introduction to process planing.		
2012035	Algorithmization and Programming Fundamentals	KZ	4
	B and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Mat		
	and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Sy		
	of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. S um, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of	_	
2153005	Fundamentals of Energy Conversions	Z	equations.
2383001	Fundamentals of Law	Z	2
	I system is a necessary part of professional equipment of each expert with university degree. The aim of this course is to pro		
	s of law and system of law (branch of law), using tutorials, lectures, specialised literature and significant legal regulations. It is		- 1
our legal institutions, that	at will be regularly in touch with, especially during their professional career and to learn how to work with the collection of law	s. At the same tim	ne the course

Code of the group: 12DTP1P-KMEN

to prepare professional presentations and to understand basic structures between law and engineering

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

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:

12B\*\*1P-KMEN#

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2182019	Chemistry Radek Šulc, Martin Dostál, Vojt ch B lohlav, Jan Sko ilas, Adam Krupica, Filip Randák Radek Šulc Radek Šulc (Gar.)	KZ	3	2P+1C	1	Р
2011021	Constructive Geometry	Z,ZK	6	3P+2C	*	Р
201A021	Constructive Geometry A	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

Characteristics of	the courses of this group of Study Plan: Code=12DTPTP-KMEN Name=00 2012 D kmenove	i. semestr i	zi prezen m					
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.								
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 er	mphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connect	tions between co	ncepts. Students					
will also get to know the	procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic area:	s: eigennumbers a	and eigenvectors					
of a matrix, Taylor polyn	omial, integral as a limit function, integration of some special functions.							
2372041	Computer Support for Study	KZ	3					
The course introduces s	tudents into creating technical and professional documents on computers or Web and into realizing technical computations wi	th the use of com	puters. Students					
gain practical skills by c	reating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical-	based WWW pag	ge.					
201A021	Constructive Geometry A	ZK	3					
The subject is focused of	on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.							
201A056	Mathematics I.A	ZK	4					
Introduction to linear alg	ebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable							
2333038	Fundamentals of Technology I.	Z	3					
Production processes in	engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technology	hnical metals. Pr	oduction 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

Note on the group:

12B\*\*2P-KMEN #

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members)  Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2021041	Physics I.	Z,ZK	7	4P+1L	*	Р
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	KZ	3	2P+1L	2	Р
2012037	Computer Graphics	KZ	3	1P+1C	*	Р

 2131002
 Engineering Design II
 Z,ZK
 4
 2P+3C
 2
 P

Characteristics of the courses of this group of Study Plan: Code=12DTP2P-KMEN Name=00 2012 D kmenové 2. semestr TZI prezen ní

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

2011062 | Matematika II. | Z,ZK | 8

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

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

Physics L

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

2021041

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 Stanislav Kra mar	Z,ZK	5	2P+2C	*	Р
201A009	Mathematics III.A Stanislav Kra mar	ZK	2	0P+0C	*	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
2321039	Materials Science II. Ji í Cejp, Jakub Horník, Jana Sobotová, Elena ižmárová, Eliška Gal íková, Pavlína Hájková, Jakub Horváth, Stanislav Krum, Vladimír Mára, Jana Sobotová Jana Sobotová (Gar.)	Z,ZK	4	2P+2L	*	Р
2133013	Engineering Design III. Št pán Tichý, Jan Hoidekr, Jan Kanaval, František Lopot, David Skalický, Roman Uhlí <b>Jan Kanaval</b> Jan Kanaval (Gar.)	Z	2	0P+2C	Z	Р
2012035	Algorithmization and Programming Fundamentals Petr Svá ek	KZ	4	1P+2C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12DTP3P-KMEN Name=00 2012 D kmenové 3. semestr TZI prezen ní

2021025 | Physics II.

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

2011009 Mathematics III
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 without 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 i	metallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal ar	nd thermo-mecha	nical processing					
technical iron-cark	bon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materials.							
2133013	Engineering Design III.	Z	2					
Design of assemb	oly unit (draft drawing, detail drawing, assembly drawing, technical report)		•					
2012035	Algorithmization and Programming Fundamentals	KZ	4					
Programming in M	MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Ma	trices, vectors an	d operations.					
Writting M-script. I	Input and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. S	ystems of linear e	quations. Scripts					
and functions. Stru	ucture of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. \$	Structures. Algorit	hmization of					
simple programs:	minimum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of	systems of linear	equations.					
202A025	Physics II.A	ZK	2					
Faraday's law of el	lectromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of	electromagnetic v	vaves. 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.								
201A009	Mathematics III A	7K	2					

Code of the group: 12DTP4P-KMEN

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:

12B\*P4P-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
2311102	Mechanics II.  Václav Bauma	Z,ZK	4	2P+2C	*	Р
2011049	Numerical Mathematics Petr Svá ek	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	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

2311102 | Mechanics II.

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 systems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical solution of ordinary differential equations, initial and boundary value problems. Numerical solution of basic linear partial differential equations by finite difference method.

equations, initial and be			
2133014	Engineering Design IV.	Z	2
2331068	Technology I.	Z,ZK	5
1			

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

201A049 Numerical Mathematics A 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 #

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+03C+14L	*	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	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.	Z,ZK	6				
Joints and joining elem-	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	of energy. El. Powe	r and Energy.
Introduction into electro	nics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilize	er, power control, c	perational
amplifier). Analogue and	d digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, microprocessor.		

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

instruments. 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,  $programming \ of \ manufacture. \ Engineering \ metrology. \ Assembly \ tec\underline{h} niques. \ Introduction \ to \ process \ planing.$ 

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

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:

MATLAB software as a common platform of control engineers.

Credits in the group: 0

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	Z,ZK	5	3P+15C+05L	*	Р
2131026	Machine Elements and Mechanisms II František Lopot	ZK	3	3P+0C	*	Р
2141505	Electrical machines and drives  Jaroslav Novák	Z,ZK	4	2P+06C+1.4L	*	Р
2133025	Design František Lopot	Z	4	0P+4C	*	Р
2381054	Management and Economics of the Enterprise	Z,ZK	4	2P+2C	*	Р
2181026	Momentum, Mass and Heat Transfer	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

23/104/	Automatic Control	Z,ZK	5
Automatic controllers ar	e important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of autom	natic control theor	y and practice
like transfer functions, o	pen versus closed loop control, design of controllers and frequency based analysis of control systems. The course also conce	ntrates on logic co	ontrol and control
via programmable logic	controllers. Some seminaries are arranged in laboratories where practical skills and control engineering methods are trained	J. Students begin	to work with

ZK 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 | Z,ZK | 4 |
| 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 | Z | 4 |
| Design, design calculations and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft couplings and clutches.

| 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 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 management 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

5

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

# Characteristics of the courses of this group of Study Plan: Code=12B\*\*1Q-HUM Name=03 2012 bakalá ské povinn volitelné humanitární 2383009 | Communication and Dealing with People | Z | 2

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

Code of the group: 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

	obiasti odborne 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, Michele Le Blanc Ilona Šimice (Gar.)	Z,ZK	2	0P+2C	*	PV
2041063	French - Bachelor Exam /FME Dušana Jirovská Eliška Vítková Dušana Jirovská (Gar.)	Z,ZK	2	0P+2C	*	PV
2041062	German - Bachelor Exam / FME Jaroslava Kommová, Eliška Vítková, Petr Laurich Jaroslava Kommová Jaroslava Kommová (Gar.)	Z,ZK	2	0P+2C	*	PV
2041065	Russian - Bachelor Exam / FME Hana Volejníková, Dušana Jirovská Eliška Vítková Dušana Jirovská (Gar.)	Z,ZK	2	0P+2C	*	PV
2041064	Spanish - Bachelor Exam / FME Jaime Andrés Villagómez Eliška Vítková Jaime Andrés Villagómez (Gar.)	Z,ZK	2	0P+2C	*	PV

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

2041061	English-Bachelor Exam	Z,ZK	2
	1 0	,	
	non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	iculties, to take pa	rt in discussions
to write a summary,	a report and an essay, to read technical texts, to master grammar at advanced level.		
2041063	French - Bachelor Exam /FME	Z,ZK	2
Mapped to the Comr	non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	iculties, to take pa	rt in discussions
to write a summary,	a report and an essay, to read technical texts, to master grammar at advanced level.		
2041062	German - Bachelor Exam / FME	Z,ZK	2
Mapped to the Comr	non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	iculties, to take pa	rt in discussions
to write a summary,	a report and an essay, to read technical texts, to master grammar at advanced level.		
2041065	Russian - Bachelor Exam / FME	Z,ZK	2
Mapped to the Comr	non European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diff	iculties, to take pa	rt in discussions
to write a summary,	a report and an essay, to read technical texts, to master grammar at advanced level.		
2041064	Spanish - Bachelor Exam / FME	Z,ZK	2
Mapped to the Comm	non 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 discussion
to 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	KZ	2	0P+2C	*	PV
2152091	Deparmental Project	KZ	2	0P+2C	*	PV
2182091	Project	KZ	2	0P+2C	*	PV
2322091	Project Jana Sobotová	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	se základy oboru Procesní technika.					
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	sis 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 to	isks.					
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	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	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

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, Lud k Beneš, 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	eant for high-school students for repetition of high-school physics.		
2016007	Mathematics I Seminar	Z	2

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

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

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

Credits in the group: 0 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)	Completion	Credits	Scope	Semester	Role
	Tutors, authors and guarantors (gar.)  English Conversation	_	_			
2046155	Ilona Šimice, Michele Le Blanc <b>Ilona Šimice</b> Michele Le Blanc (Gar.)	Z	2	0P+2C	*	V
2046156	English Conversation Michele Le Blanc	Z	2	0P+2C	L	V
2046071	English - Lower Intermediate Veronika Kratochvílová	Z	2	0P+2C	L	V
2046070	English - Lower Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046074	English - Advanced Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová, Michele Le Blanc <b>Michaela Schusová</b> Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046075	English - Advanced Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová, Michele Le Blanc Ilona Šimice Ilona Šimice (Gar.)	Z	2	0P+2C	L	V
2046072	English - Upper Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046073	English - Upper Intermediate Ilona Šimice Ilona Šimice Ilona Šimice (Gar.)	Z	2	0P+2C	L	٧
2046068	English - Beginners Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046069	English - Beginners Veronika Kratochvilová Ilona Šimice	Z	2	0P+2C	L	٧
2046126	Czech Lower Intermediate  Jaroslava Kommová	Z	2	0P+2C	L	V
2046125	Czech Lower Intermediate	Z	2	0P+2C	Z	V
2046118	Jaroslava Kommová  Czech -Advanced	Z	2	0P+2C	L	V
2046117	Jaroslava Kommová  Czech -Advanced	Z	2	0P+2C	Z	V
2046127	Jaroslava Kommová  Czech - Upper Intermediate	Z	2	0P+2C	Z	V
2046128	Jaroslava Kommová  Czech - Upper Intermediate	Z	2	0P+2C	L	V
2046119	Jaroslava Kommová Czech Language for Beginners I.	Z	2	0P+2C	Z	
2046120	Jaroslava Kommová  Czech Language for Beginners II.	Z	2	0P+2C	L	
2046120	Jaroslava Kommová  French - Lower Intermediate Course			0P+2C	L	V
2046086	Michaela Schusová, Dušana Jirovská <b>Michaela Schusová</b> Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046087	French - Lower Intermediate Course Dušana Jirovská Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	L	V
2046091	French - Advanced Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	L	٧
2046090	French - Advanced Michaela Schusová, Dušana Jirovská, Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046089	French - Upper Intermediate Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	L	٧
2046088	French - Upper Intermediate Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	z	V
2046084	French - Beginners Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	z	V
2046085	French - Beginners' Course Dušana Jirovská Michaela Schusová Dušana Jirovská (Gar.)	Z	2	0P+2C	L	V
2146060	Indonesian Language Course for Exchange	Z	2	0P+2C	*	V
2146061	Technical Indonesian - Course I.	Z	2	0P+2C	Z	V
2144062	Technical Indonesian - Course II.	Z,ZK	3	1P+2C	L	V
2046078	German - Lower Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046079	German - Lower Intermediate Course Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046083	German - Advanced Course Jaroslava Kommová, Eliška Vítková, Petr Laurich Jaroslava Kommová Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V

2046082	German - Advanced Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046081	German - Upper Intermediate Course Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046080	German - Upper Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046076	German - Beginners Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich <b>Michaela</b> Schusová Petr Laurich (Gar.)	Z	2	0P+2C	Z	V
2046077	German - Beginners Jaroslava Kommová, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046161	Presentations in English  Michaela Schusová	Z	2	0P+2C	*	V
2046166	Presentations in Czech Jaroslava Kommová	Z	2	0P+2C	*	V
2046162	Presentations in German Jaroslava Kommová, Eliška Vítková, Petr Laurich <b>Jaroslava Kommová</b> Jaroslava Kommová (Gar.)	Z	2	0P+2C	*	V
2046164	Presentations in Russian Dušana Jirovská	Z	2	0P+2C	*	V
2046163	Presentations in French language Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	*	V
2046165	Presentations in Spanish Eliška Vítková	Z	2	0P+2C	*	V
2046137	Russian - Lower Intermediate Course Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046138	Russian - Lower Intermediate Course Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046141	Russian - Advanced Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046142	Russian - Advanced Hana Volejníková, Dušana Jirovská <b>Dušana Jirovská</b>	Z	2	0P+2C	L	V
2046140	Russian - Upper Intermediate 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 <b>Michaela Schusová</b> Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046136	Russian - Beginners 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 <b>Michaela Schusová</b> Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046099	Spanish - Lower Intermediate Jaime Andrés Villagómez Eliška Vítková Jaime Andrés Villagómez (Gar.)	Z	2	0P+2C	L	V
2046098	Spanish - Lower Intermediate Michaela Schusová, Eliška Vítková, Jaime Andrés Villagómez Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046096	Spanish - Beginners Michaela Schusová, Eliška Vítková, Jaime Andrés Villagómez Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046097	Spanish - Beginners Jaime Andrés Villagómez Jaime Andrés Villagómez (Gar.)	Z	2	0P+2C	L	V

kurzy a prezentace	8		
2046155	English Conversation	Z	2
Improving communicative	ve skills in speaking on general topics and general technical topics.		
2046156	English Conversation	Z	2
Improving communicative	ve skills in speaking on general topics and general technical topics.		
2046071	English - Lower Intermediate	Z	2
Mapped 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 ar	nd speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improvem	ent of professiona	al language.
2046070	English - Lower Intermediate	Z	2
Aim: Understanding clea	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	m. Writing in a sir	nple way about
familiar topics. Reading	and comprehension of simple texts. Improvement of professional language. A1 - A2.		
2046074	English - Advanced	Z	2
The aim: comprehension	n of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Writ	ten and oral skills	on advanced
level. Ability to write a su	ummary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's fie	ld of studies with	out difficulties.
Grammar structures on	advanced level. B1 - B2.		

2046075	English - Advanced	Z	2
	n European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in E	-	
	in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and compre	hension of popula	r-scientific and
scientific articles or text	ts from student's field of studies without difficulties. Grammar structures on advanced level.		
2046072	English - Upper Intermediate	Z	2
	nguage skills taking into consideration professional English and common professional terminology. Comprehension of standard	d English speech a	and conversation
	y life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1.		
2046073	English - Upper Intermediate	Z	2
	n European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional En	_	-
knowledge.	nsion of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on interm	iediale ievei. Broa	dening grammar
2046068	English - Beginners	Z	2
	penglish - Degriniers of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (p		
2046069	English - Beginners	7	2
	ր Errigiish - Degriffiers n European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understan	_	
	minology (professional language).	ang and doo or be	acio expressione
2046126	Czech Lower Intermediate	Z	2
	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	. – .	_
_	and comprehension of simple texts. Improvement of professional language.	Ü	. ,
2046125	Czech Lower Intermediate	Z	2
	arly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	n — ⊓ em. Writing in a sir	nple way about
familiar topics. Reading	and comprehension of simple texts. Improvement of professional language.		
2046118	Czech -Advanced	Z	2
Mapped to the level of	Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in C	Szech without grea	at difficulties and
active participation in a	discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehen	sion of popular-sc	eientific and
	s from student's field of studies without difficulties. Grammar structures on advanced level.		
2046117	Czech -Advanced	Z	2
i i	sen language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in	=	essing opinions.
	write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical a		
2046127	Czech - Upper Intermediate	Z	2
_	d speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abili	ty to describe exp	eriences and
	ne's opinions and plans. Reading and understanding general and technical texts.		
2046128	Czech - Upper Intermediate	Z	2
	n European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional		-
	nsion of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on inter	mediate level. Bro	adening the
knowledge technical la			0
2046119	Czech Language for Beginners I.  Bryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profes	Z Z	2
2046120	Czech Language for Beginners II. n European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understan	Z ding and use of h	2
	minology (professional language).	ding and use or be	asic expressions
2046086	French - Lower Intermediate Course	Z	2
	phat is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wr	1	
	mprehension of simple texts. Improvement of professional language.	iting in a simple w	ay about lamiliai
2046087	French - Lower Intermediate Course	Z	2
	Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which	_	_
	beaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement		
2046091	French - Advanced	Z	2
	Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on to	pics familiar to the	
Communication with na	tive speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading an	nd understanding	texts concerning
currant issues and pop	ular scientific and technical articles.		
2046090	French - Advanced	Z	2
Comprehension of spol	ken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participatio	n in discussions. F	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.	
2046089	French - Upper Intermediate	Z	2
	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students c		
	lking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understa	anding general and	
2046088	French - Upper Intermediate	Z	2
_	d speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abili	ty to describe exp	eriences and
	ne's opinions and plans. Reading and understanding general and technical texts.		
2046084	French - Beginners	Z	2
	what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wr	iting in a simple w	ay about familiar
	mprehension of simple texts. Improvement of professional language.	7	
2046085	French - Beginners' Course	Z Z	2
	Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which beaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement o		
2146060		Z	guage. 2
	Indonesian Language Course for Exchange nguage for Student Exchange Program to Indonesia		۷
2146061	Technical Indonesian - Course I.	Z	2
	ian Language for Student Exchange Program to Indonesia		-
2144062	Technical Indonesian - Course II.	Z,ZK	3
	nguage for Student Exchange Program to Indonesia	_,_,_,	

2046078 Aim: Understanding of			
Aim. Understanding t	German - Lower Intermediate Course early what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking ab	Z	2 a simple way
about familiar topics	early what is spoken about everyday situations which a student meets in the company of in his/her free time and speaking at Reading and comprehension of simple texts. Improvement of professional language.	out them. whiting in	a simple way
2046079	German - Lower Intermediate Course	7	2
	Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which		_
* *	and speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts, Improvement		
2046083	German - Advanced Course	7	2
	Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given i	Cormon without a	_
	n in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compr		
	thin a discussion. Written and oral skins on advanced level. Ability to write a summary, a report, an essay. Neading and complets from student's field of studies without difficulties. Grammar structures on advanced level.	enension of popular	-scientino and
2046082	German - Advanced Course	Z	2
	German - Advanced Course oken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participat	_	
	. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to		_xpressing
2046081	German - Upper Intermediate Course	Z	2
	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of		_
	alking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understa		
2046080		7	2
	German - Upper Intermediate Course rd speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abil		_
-	one's opinions and plans. Reading and understanding general and technical texts.	iity to describe expe	nences and
		Z	2
2046076	German - Beginners reryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profes	_	_
	reryday life in a spoken and written form. Orderstanding and use of basic expressions of general scientific terminology (profes n Framework of Reference for Languages A1.	ssional language) it	corresponds
<u>.</u>		7	
2046077	│German - Beginners ommon European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding	Z	2
	·	and use of basic ex	cpressions of
	inology (professional language).	7	
2046161	Presentations in English	Z	2
	present in English on technical topics, with a possible co-operation with specialized departments.		
2046166	Presentations in Czech	Z	2
	give presentations in English on technical topics, with a possible co-operation with specialized departments.		
2046162	Presentations in German	Z	2
	ting technical topics in German, possibly in cooperation with specialized departments.		
2046164	Presentations in Russian	Z	2
Preparation for prese	ting technical topics in Russian, possibly in cooperation with specialized departments.		
2046163	Presentations in French language	Z	2
Preparation for prese	ting technical topics in French, possibly in cooperation with specialized departments.		
2046165	Presentations in Spanish	Z	2
Preparation for prese	ting technical topics in Spanish, possibly in cooperation with specialized departments.		
2046137	Russian - Lower Intermediate Course	Z	2
Understanding clearly	what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. W	riting in a simple wa	y about familia
topics. Reading and o	omprehension 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 st	1	ool or in his/he
• •	g about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of profe		
2046141	Russian - Advanced	Z	2
	plen language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participat	1	
	. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to		
2046142	Russian - Advanced	Z	2
	Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on		
	ative speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a	•	
			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Communication with		ind understanding to	
Communication with currant issues and po	pular scientific and technical articles.		2
Communication with currant issues and po	oular scientific and technical articles.  Russian - Upper Intermediate	Z	2
Communication with currant issues and po 2046140 Mapped to the level of	oular scientific and technical articles.  Russian - Upper Intermediate  Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student	Z meets at work, at so	hool, during
Communication with currant issues and por 2046140 Mapped to the level of free time, and talking	bular scientific and technical articles.  Russian - Upper Intermediate  Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding	Z meets at work, at so	chool, during technical texts
Communication with currant issues and por 2046140 Mapped to the level of free time, and talking 2046139	bular scientific and technical articles.  Russian - Upper Intermediate Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student about these topics. Ability to describe experiences and events, briefly explain one so opinions and plans. Reading and understanding Russian - Upper Intermediate	Z meets at work, at so	chool, during technical texts 2
Communication with currant issues and por 2046140 Mapped to the level of free time, and talking 2046139 Understanding standard	cular scientific and technical articles.  Russian - Upper Intermediate Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding Russian - Upper Intermediate  rd speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abil	Z meets at work, at so	chool, during technical texts 2
Communication with currant issues and por 2046140 Mapped to the level of free time, and talking 2046139 Understanding standard events, briefly explain	cular scientific and technical articles.  Russian - Upper Intermediate Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding Russian - Upper Intermediate  rd speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability one's opinions and plans. Reading and understanding general and technical texts.	Z meets at work, at so anding general and Z lity to describe expe	shool, during technical texts 2 riences and
Communication with currant issues and por 2046140 Mapped to the level of free time, and talking 2046139 Understanding standaevents, briefly explain 2046136	cular scientific and technical articles.  Russian - Upper Intermediate Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understand Russian - Upper Intermediate  rd speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abilione's opinions and plans. Reading and understanding general and technical texts.  Russian - Beginners	Z meets at work, at so anding general and Z lity to describe expe	chool, during technical texts 2 riences and 2
Communication with currant issues and por 2046140 Mapped to the level of free time, and talking 2046139 Understanding standaevents, briefly explain 2046136 Mapped to the level of	Russian - Upper Intermediate Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding standard speech about familiar matters that a student red speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to opinions and plans. Reading and understanding general and technical texts.  Russian - Beginners Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understanding	Z meets at work, at so anding general and Z lity to describe expe	chool, during technical texts 2 riences and 2
Communication with currant issues and por 2046140 Mapped to the level of free time, and talking 2046139 Understanding standaevents, briefly explain 2046136 Mapped to the level of general scientific te	Russian - Upper Intermediate Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding standard speech about familiar matters that a student red speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to opinions and plans. Reading and understanding general and technical texts.  Russian - Beginners Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understand reminology (professional language)	Z meets at work, at so anding general and Z lity to describe expe	thool, during technical texts 2 riences and 2 c expressions
Communication with currant issues and por 2046140 Mapped to the level of free time, and talking 2046139 Understanding standaevents, briefly explain 2046136 Mapped to the level of general scientific to 2046135	Russian - Upper Intermediate Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding standard speech about familiar matters that a student red speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to opinions and plans. Reading and understanding general and technical texts.  Russian - Beginners Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understand rminology (professional language)  Russian - Beginners	Z meets at work, at so anding general and Z lity to describe expe Z ling and use of basic	chool, during technical texts 2 riences and 2
Communication with currant issues and por 2046140 Mapped to the level of free time, and talking 2046139 Understanding standaevents, briefly explain 2046136 Mapped to the level of general scientific to 2046135 Basic vocabulary of e	Russian - Upper Intermediate Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student rabout these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding standard speech about familiar matters that a student red speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability one's opinions and plans. Reading and understanding general and technical texts.  Russian - Beginners Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understand reminology (professional language)  Russian - Beginners Russian - Beginners Russian - Beginners	Z meets at work, at so anding general and Z lity to describe expe Z ling and use of basic	chool, during technical texts 2 riences and 2 c expressions 2
Communication with currant issues and por 2046140 Mapped to the level of free time, and talking 2046139 Understanding standarevents, briefly explain 2046136 Mapped to the level of general scientific to 2046135 Basic vocabulary of each 2046099	Russian - Upper Intermediate Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student rabout these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding standard speech about familiar matters that a student red speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abilione's opinions and plans. Reading and understanding general and technical texts.  Russian - Beginners Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understand reminology (professional language)  Russian - Beginners	Z meets at work, at so anding general and Z lity to describe expe Z ling and use of basic Z ssional language) Z	chool, during technical texts 2 riences and 2 c expressions 2
Communication with currant issues and por 2046140 Mapped to the level of free time, and talking 2046139 Understanding standarevents, briefly explain 2046136 Mapped to the level of general scientific to 2046135 Basic vocabulary of e 2046099 Mapped to the level of the level of the level of 2046099	Russian - Upper Intermediate Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student rabout these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding standard speech about familiar matters that a student red speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability one's opinions and plans. Reading and understanding general and technical texts.  Russian - Beginners Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understand reminology (professional language)  Russian - Beginners Russian - Russi	Z meets at work, at so anding general and Z lity to describe expe Z ling and use of basic Z ssional language) Z udent meets at school	chool, during technical texts 2 riences and 2 c expressions 2
Communication with currant issues and por 2046140 Mapped to the level of free time, and talking 2046139 Understanding standaevents, briefly explain 2046136 Mapped to the level of general scientific to 2046135 Basic vocabulary of e 2046099 Mapped to the level of free time and speaking	Russian - Upper Intermediate Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student rabout these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding standard speech about familiar matters that a student radiout these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  Russian - Beginners Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understanding plans and understanding general and technical texts.  Russian - Beginners Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understanding plans and use of basic expressions of general scientific terminology (professional language)  Spanish - Lower Intermediate Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a standard about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional comprehension of simple texts. Improvement of professional situations which a standard about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional and the professional simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional and the professional simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional and the professional simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional simple way about familiar topics.	Z meets at work, at so anding general and Z lity to describe experiments and use of basic Z ssional language) Z udent meets at schoossional language.	chool, during technical texts 2 riences and 2 c expressions 2
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2046097 Spanish - Beginners Z 2
Mapped to the Common European Framework of Reference Level A1. Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in

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

### List of courses of this pass:

Code	Name of the course	Completion	Credits
2011009	Mathematics III  An introductory course in ordinary differential equation and infinite series.	Z,ZK	5
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		
2011049	Numerical Mathematics	Z,ZK	4
Numerical solution of	of systems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical		y differential
2011056	equations, initial and boundary value problems. Numerical solution of basic linear partial differential equations by finite difference		0
2011056	Mathematics I er emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connection	Z,ZK s between concep	8 ts Students
-	the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: ei		
	of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.		
2011062	Matematika II.	Z,ZK	8
=	set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differentiability of the control of the		
	unction given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, l ; cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Greer		
	e of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector	•	
mora, maoportaonio	Gauss-Ostrogradskij theorem.	. nord unough a o	
2012035	Algorithmization and Programming Fundamentals	KZ	4
Programming in N	MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Matri	ces, vectors and o	perations.
	put and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. System	•	-
	ructure of program. Variables, expressions, assignment, and input / output commands, switch. For cycle. Arrays and files. Pointers. St	Ü	
2012037	: minimum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of s	KZ	•
	Computer Graphics Project	KZ	2
2012091 2013991	Bachelor Thesis	Z	4
2013991	Mathematics I Seminar	Z	2
2016007 201A009	Mathematics III.A	ZK	2
201A009 201A021	Constructive Geometry A	ZK	3
201A021	The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relation		3
201A049	Numerical Mathematics A	ZK	2
201A056	Mathematics I.A	ZK	4
_0.7.000	Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable		·
201A062	Mathematics II.A	ZK	4
Open and closed	set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differenti	al operators div (d	ivergence)
	function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, limit in the contract of the co		
	r, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Greer se of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vecto		
neia, inaepenaena	Gauss-Ostrogradskij theorem.	i neid tillodgir a st	illace. The
2021025	Physics II.	Z,ZK	4
1	ctromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of elec		
	atter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and		
	ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 exper		
2021041	Physics I.	Z,ZK	7
=	amics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic pro echanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co	-	
	c field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect		
· ·	measurements of 11 various experiments related to the lectures.		
2026016	Physics - Seminar	Z	2
	The subject is mainly meant for high-school students for repetition of high-school physics.		
202A025	Physics II.A	ZK	2
	ctromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of elec		
	atter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 exper		
202A041	Physics I.	ZK	3
	amics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic pro		_
=	chanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co	-	
insulators. Magneti	c field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect	ct measurements,	regression,
	measurements of 11 various experiments related to the lectures.		

2041061 Mapped to the Com			
	English-Bachelor Exam Imon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult	Z,ZK ies, to take part in o	2 discussions,
	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.		
2041062	German - Bachelor Exam / FME	Z,ZK	2
Mapped to the Com	mon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	ies, to take part in o	discussions,
2041063	French - Bachelor Exam /FME	Z,ZK	2
Mapped to the Com	mon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	ies, to take part in	discussions,
2041064	Spanish - Bachelor Exam / FME	Z,ZK	2
	nmon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult	,	!
	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.		
2041065	Russian - Bachelor Exam / FME	Z,ZK	2
Mapped to the Com	imon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	ies, to take part in o	discussions,
2046068	English - Beginners	Z	2
	abulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (p	_	1 1
2046069	English - Beginners	Z	2
	nmon European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding	and use of basic	expressions
	of general scientific terminology (professional language).		
2046070	English - Lower Intermediate	Z	2
Aim: Understandin	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Writing in a simple	way about
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.		
2046071	English - Lower Intermediate	Z	2
Mapped to the Cor	mmon European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which a s	tudent meets eithe	er at school
or at his/her free	time and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improveme	nt of professional I	anguage.
2046072	English - Upper Intermediate	Z	2
The aim is to extend	d language skills taking into consideration professional English and common professional terminology. Comprehension of standard En	glish speech and c	conversation
	about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 -	B1.	
2046073	English - Upper Intermediate	Z	2
	mmon European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional Engli		
terminology. Compr	rehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermedia	ate level. Broadeni	ng grammar
	knowledge.		_
2046074	English - Advanced	Z	2
•	nension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Written		
level. Ability to wil	te a summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's field Grammar structures on advanced level. B1 - B2.	oi studies without	difficulties.
00.10075	Grammar di doctaros di advarios di Peter.		
20/16075	English - Advanced	7	2
2046075 Manned to the Co	English - Advanced	Z	2 difficulties
Mapped to the Co	ommon European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in	glish without great	difficulties
Mapped to the Co	9	glish without great	difficulties
Mapped to the Co	ommon European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in English at lectures given in English a	glish without great	difficulties
Mapped to the Co and active particip 2046076	ommon European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in English in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and compreher scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.	glish without great usion of popular-sc	difficulties ientific and
Mapped to the Co and active particip 2046076	ommon European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in English and compreher ation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and compreher scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  German - Beginners	glish without great usion of popular-sc	difficulties ientific and
Mapped to the Co and active particip 2046076	ommon European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in	glish without great usion of popular-sc	difficulties ientific and
Mapped to the Co and active particip 2046076 Basic vocabulary o	ommon European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in	glish without great usion of popular-sc Z al language) It cor	difficulties cientific and 2 responds to 2
Mapped to the Co and active particip 2046076 Basic vocabulary o 2046077 Mapped to the leve	ommon European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in English and Section in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and compreher scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  German - Beginners  f everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profession the Common European Framework of Reference for Languages A1.  German - Beginners  el Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding an general scientific terminology (professional language).	glish without great sisten of popular-sc Z al language) It cor Z d use of basic exp	difficulties cientific and  2 responds to  2 ressions of
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Mapped to the Co and active particip 2046076 Basic vocabulary of 2046077 Mapped to the level 2046078	ommon European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in English in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and compreher scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  German - Beginners  f everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profession the Common European Framework of Reference for Languages A1.  German - Beginners  el Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding an general scientific terminology (professional language).  German - Lower Intermediate Course  g clearly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking about	glish without great sisten of popular-scored al language) It cored to use of basic exp	difficulties cientific and  2 responds to  2 ressions of
Mapped to the Co and active particip 2046076 Basic vocabulary o 2046077 Mapped to the lev 2046078 Aim: Understandin	ommon European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in English in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and compreher scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  German - Beginners  f everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profession the Common European Framework of Reference for Languages A1.  German - Beginners  el Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding an general scientific terminology (professional language).  German - Lower Intermediate Course  g clearly what is spoken about everyday situations which a student meets in the company or in his/her free time and speaking about about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	glish without great ision of popular-scoro Z al language) It coro Z d use of basic exp	difficulties cientific and  2 responds to  2 ressions of  2 simple way
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2046085 French - Beginners´ Course  Manage to the level of Common European Framework of Reference: A1 Aim: Understanding clearly what is speken about everyday situations.	Z	2
Mapped to the level of Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations whis/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Impro		
2046086 French - Lower Intermediate Course	Z	2
Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them topics. Reading and comprehension of simple texts. Improvement of professional language.	ı. Writing in a simple way a	bout familiar
2046087 French - Lower Intermediate Course	Z	2
Mapped to the level of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations		
his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Impro	vement of professional lar	
2046088 French - 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 events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.		1
2046089 French - Upper Intermediate	Z	2
Mapped to the level of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a stude		
during free time, and talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and under	erstanding general and ted	1
2046090 French - Advanced	<u>Z</u>	2
Comprehension of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, part opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular sc		
	7	2
2046091   French - Advanced  Mapped to the level of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French	ch on tonics familiar to the	1
Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading	•	
currant issues and popular scientific and technical articles.	ig and understanding texts	3 concerning
2046096 Spanish - Beginners	7	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	ut them. Writing in a simple	_
familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		•
2046097 Spanish - Beginners	Z	2
Mapped to the Common European Framework of Reference Level A1. Aim: Understanding clearly what is spoken about everyday situations w	vhich a student meets at s	chool or in
his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Impro	ovement of professional lar	nguage.
2046098 Spanish - Lower Intermediate	Z	2
Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them	ı. Writing in a simple way a	bout familiar
topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046099 Spanish - Lower Intermediate	Z	2
Mapped to the level of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which	a student meets at school	or in his/her
free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improven	nent of professional langua	age.
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	on in discussions. Expressi	ing opinions.
Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientif	fic and technical articles.	
2046118 Czech -Advanced	Z	2
Mapped to the level of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given	•	
active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and com		entific and
scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced le		
2046119   Czech Language for Beginners I.	Z	2
Basic vocabulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific termin		
2046120   Czech Language for Beginners II.	Z	2
Mapped to the Common European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Under of general scientific terminology (professional language).	standing and use of basic	expressions
	7	2
2046125   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	ut them. Writing in a simple	2 a way about
familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	at them. writing in a simple	c way about
2046126 Czech Lower Intermediate	7	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	-	
familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		,
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	1	· I
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 professi	ional Czech and common	professional
terminology. Comprehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, o	n intermediate level. Broad	dening the
knowledge technical language.		
2046135 Russian - Beginners	Z	2
Basic vocabulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific termin	ology (professional langua	<u> </u>
2046136 Russian - Beginners	Z	2
Mapped to the level of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Unders	tanding and use of basic e	expressions
of general scientific terminology (professional language)		
2046137 Russian - Lower Intermediate Course	Z	2
Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them	ı. Writing in a simple way a	bout familiar
topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046138 Russian - Lower Intermediate Course	Z	2
Mapped to the level of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which		or in his/her
troe time and anadying about them. Writing in a simple way about temiliar tenion. Deading and comprehension of simple texts. Impression	nent at protocolonal lengue	200

2046139	Russian - Upper Intermediate	Z	2
	andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	to describe experi	ences and
	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.		
2046140	Russian - Upper Intermediate	Z	2
Mapped to the le	vel of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student me	ets at work, at sch	ool, during
free time, and talki	ng about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understandi	ng general and tec	hnical texts.
2046141	Russian - Advanced	Z	2
Comprehension	of spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participatio	n in discussions. E	xpressing
opinions.	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific	and technical article	es.
2046142	Russian - Advanced	Z	2
Mapped to the I	evel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to	pics familiar to the	student.
Communication wi	th native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and u	nderstanding texts	concerning
	currant issues and popular scientific and technical articles.		
2046155	English Conversation	Z	2
	Improving communicative skills in speaking on general topics and general technical topics.		
2046156	English Conversation	Z	2
	Improving communicative skills in speaking on general topics and general technical topics.		
2046161	Presentations in English	Z	2
	Preparing students to present in English on technical topics, with a possible co-operation with specialized departments.		
2046162	Presentations in German	Z	2
	Preparation for presenting technical topics in German, possibly in cooperation with specialized departments.		
2046163	Presentations in French language	Z	2
	Preparation for presenting technical topics in French, possibly in cooperation with specialized departments.		
2046164	Presentations in Russian	Z	2
	Preparation for presenting technical topics in Russian, possibly in cooperation with specialized departments.		
2046165	Presentations in Spanish	Z	2
	Preparation for presenting technical topics in Spanish, possibly in cooperation with specialized departments.		
2046166	Presentations in Czech	Z	2
	Preparing students to give presentations in English on technical topics, with a possible co-operation with specialized departm		
2131002	Engineering Design II	Z,ZK	4
	PS (Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface		al tolerance,
1	ps, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice the	=	
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.		
2131512	Machine Elements and Mechanisms I.	Z,ZK	6
Joints and joining e	elements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, ke		ansmissions
(belt, chain, frict	on, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded	d connecting bolts,	clamped,
pressed, splined a	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)		
2133014	Engineering Design IV.	Z	2
2133025	Design	Z	4
	n, design calculations and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft coupl	ings and clutches.	
2141504	Electric Circuits and Electronics	Z,ZK	4
	leory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of	, ,	nd Energy.
Introduction into	electronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilize	r, power control, op	erational
	amplifier). Analogue and digital circuits. Principle of analogue and digital signal processing. Logical circuits, converters, micropro	cessor.	
2141505	Electrical machines and drives	Z,ZK	4
l	ctrical power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transf		onstruction,
3-phase transfor	mer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-	torque characteris	tic, speed
control. Synchrono	us machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque character	ristic. Low-voltage i	nstruments.
	Low-voltage distribution system.		
2144062	Technical Indonesian - Course II.	Z,ZK	3
	Basic of Indonesian Language for Student Exchange Program to Indonesia		
2146060	Indonesian Language Course for Exchange	Z	2
	Basic of Indonesian Language for Student Exchange Program to Indonesia	· '	·
2146061	Technical Indonesian - Course I.	Z	2
	Second part of Indonesian Language for Student Exchange Program to Indonesia		
2152091	Deparmental 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		_
	continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and the		
	systems. Mass transfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.		1

2182019	Chemistry	KZ	3
General chemist	ry from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties	of matter, thermo	dynamics,
phase equilibriu	m, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and biocher	mistry. Laboratory	practice is
	oriented upon the material properties measurement.		
2182091	Project	KZ	2
	Absolvent se seznámí se základy oboru Procesní technika.	'	'
2183991	Bachelor Thesis	Z	4
2213991	Bachelor Thesis	Z	4
2311101	Mechanics I.	Z,ZK	4
	with the basic concepts of statics. There are described the methods of solution of equilibrium of particles and rigid bodies and their sys	'	
Wechanics i deals	There are introduced the methods of description of position and motion of particles and rigid bodies.	sterris with and with	nout metion.
0044400		7 71/	
2311102	Mechanics II.	Z,ZK	4
	t and of rigid bodies. Transformation matrix. Kinematics of concurrent movements. Motion: translation, rotation, general planar motion, s		
general spatial mo	tion. Composition of mechanisms. Basic planar mechanisms. Analytical methods in kinematics of mechanisms - Trigonometric and vectors and vectors are also as a second seco		cal methods
	in kinematics. Basic theory of gearing. Transmition mechanisms with geers. Strutting and seezing in mechanisms. Cable mechanisms		
2311107	Mechanics III.	Z,ZK	7
Mechanics III deal	ls with the basic concepts of dynamics. Methods of solving the dynamics of mass particle and body motion and their systems are des	cribed. Methods fo	r describing
	and solving vibrations of systems.		
2321039	Materials Science II.	Z,ZK	4
Fundamentals of r	netallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and th	nermo-mechanical	processing,
	technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materi	als.	
2322029	Materials Science I.	KZ	3
	ent state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, defor		
	erials, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, in	-	
2322091	Project	KZ	2
	e preliminary submission of a bachelor thesis the students, under supervision of their supervisors, prepare a review summarizing and e		1 1
	emphasis on experimental technologies which can be applied in their bachelor theses. They can also mention a planned experiment o	-	
with particular e	knowledge or results.	r evaluate filtrerto	obtained
0000004		7	
2323991	Bachelor thesis	Z	4
	Development of the bachelor thesis on an assignment under the supervision.	<u> </u>	
2331068	Technology I.	Z,ZK	5
Foundry properties	s of metals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of form	ning processes. Se	mi-products,
	heating-up. Cutting. Cold and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. Brazing. Surface treatment	S.	
2332091	Project	KZ	2
2002001			
	,		
2333038	Fundamentals of Technology I.	Z	3
2333038 Production proces	Fundamentals of Technology I. sses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technology of engineering production.	Z nical metals. Produ	3 action of pig
2333038 Production proces iron and steel. Ca	Fundamentals of Technology I.  sses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, techrasting: modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming technology.	Z nical metals. Produ nnology. Hot and co	3 action of pig old forging.
2333038 Production proces iron and steel. Ca	Fundamentals of Technology I.  sses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, techrasting: modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming techorging. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of weld	Z nical metals. Produ nnology. Hot and co	3 action of pig old forging.
2333038 Production procesiron and steel. Ca	Fundamentals of Technology I. sses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technology modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming technology. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of welding and arc welding with coated electrodes. Thermal cutting.	Z nical metals. Produ nnology. Hot and c ding. Fusion weldir	3 action of pig old forging. ng: Flame
2333038 Production procesiron and steel. Ca Free and drop for	Fundamentals of Technology I. sses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technology modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming technology. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of welding and arc welding with coated electrodes. Thermal cutting.  Bachelor Thesis	Z nical metals. Produ nnology. Hot and c ding. Fusion weldir Z	3 liction of pig old forging. ng: Flame
2333038 Production procesiron and steel. Ca Free and drop for 2333991 2341014	Fundamentals of Technology I. sses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, techrasting: modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming techorging. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of welding and arc welding with coated electrodes. Thermal cutting.  Bachelor Thesis  Technology II.	Z  nical metals. Produ  nnology. Hot and co  ding. Fusion weldir  Z  Z,ZK	3 action of pig old forging. ng: Flame
2333038 Production procesiron and steel. Ca Free and drop for 2333991 2341014	Fundamentals of Technology I. sses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technology modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming technology. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of welding and arc welding with coated electrodes. Thermal cutting.  Bachelor Thesis  Technology II. formation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining econor	Z  nical metals. Produ  nnology. Hot and co  ding. Fusion weldir  Z  Z,ZK	3 action of pig old forging. ng: Flame
2333038 Production procesiron and steel. Ca Free and drop for 2333991 2341014 mechanics of chip	Fundamentals of Technology I.  sses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technology modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming technology. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of welding and arc welding with coated electrodes. Thermal cutting.  Bachelor Thesis  Technology II.  formation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining econor programming of manufacture. Engineering metrology. Assembly techniques. Introduction to process planing.	Z  nical metals. Produ nnology. Hot and co ding. Fusion weldir  Z  Z,ZK nics. Automation o	3 lection of pig old forging. ng: Flame  4 5 if processes,
2333038 Production procesiron and steel. Ca Free and drop for 2333991 2341014	Fundamentals of Technology I. sses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technology modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming technology. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of welding and arc welding with coated electrodes. Thermal cutting.  Bachelor Thesis  Technology II. formation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining econor programming of manufacture. Engineering metrology. Assembly techniques. Introduction to process planing.  Project	Z  nical metals. Produ  nnology. Hot and co  ding. Fusion weldir  Z  Z,ZK	3 action of pig old forging. ng: Flame
2333038 Production procesiron and steel. Ca Free and drop for 2333991 2341014 mechanics of chip	Fundamentals of Technology I.  sses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technology modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming technology. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of welding and arc welding with coated electrodes. Thermal cutting.  Bachelor Thesis  Technology II.  formation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining econor programming of manufacture. Engineering metrology. Assembly techniques. Introduction to process planing.	Z nical metals. Produ nnology. Hot and ci ding. Fusion weldir  Z Z,ZK nics. Automation o	3 lection of pig old forging. ng: Flame  4 5 if processes,
2333038 Production procesiron and steel. Ca Free and drop for 2333991 2341014 mechanics of chip	Fundamentals of Technology I. sses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technology modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming technology. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of welding and arc welding with coated electrodes. Thermal cutting.  Bachelor Thesis  Technology II. formation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining econor programming of manufacture. Engineering metrology. Assembly techniques. Introduction to process planing.  Project	Z  nical metals. Produ nnology. Hot and co ding. Fusion weldir  Z  Z,ZK nics. Automation o	3 lection of pig old forging. ng: Flame  4 5 if processes,
2333038 Production procesiron and steel. Ca Free and drop for 2333991 2341014 mechanics of chip 2342091 2352091	Fundamentals of Technology I.  sses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technology modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming technology. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of welding and arc welding with coated electrodes. Thermal cutting.  Bachelor Thesis  Technology II.  formation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining econor programming of manufacture. Engineering metrology. Assembly techniques. Introduction to process planing.  Project  Work on specialized tasks.  Specialization Project	Z nical metals. Produ nnology. Hot and ci ding. Fusion weldir  Z Z,ZK nics. Automation o	3 action of pig old forging. ng: Flame  4 5 f processes,
2333038 Production procesiron and steel. Ca Free and drop for 2333991 2341014 mechanics of chip 2342091 2352091 2362091	Fundamentals of Technology I. sses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technology modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming technology. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of weld welding and arc welding with coated electrodes. Thermal cutting.  Bachelor Thesis  Technology II.  formation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining econor programming of manufacture. Engineering metrology. Assembly techniques. Introduction to process planing.  Project  Work on specialized tasks.  Specialization Project  Project	Z nical metals. Produ nnology. Hot and c ding. Fusion weldir  Z Z,ZK mics. Automation o  KZ  KZ  KZ	3 lection of pig old forging. ng: Flame  4 5 f processes, 2 2
2333038 Production procesiron and steel. Ca Free and drop for 2333991 2341014 mechanics of chip 2342091 2352091 2362091 2363991	Fundamentals of Technology I. sses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technology modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming technology. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of weld welding and arc welding with coated electrodes. Thermal cutting.  Bachelor Thesis  Technology II.  formation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining econor programming of manufacture. Engineering metrology. Assembly techniques. Introduction to process planing.  Project  Work on specialized tasks.  Specialization Project  Project  Bachelor Thesis	Z nical metals. Produ nnology. Hot and co ding. Fusion weldir  Z Z,ZK nics. Automation o  KZ  KZ  KZ  Z	3 lection of pig old forging. hg: Flame  4 5 f processes, 2 2 2 4
2333038 Production procesiron and steel. Ca Free and drop for 2333991 2341014 mechanics of chip 2342091 2352091 2362091 2363991 2371047	Fundamentals of Technology I. sses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technology modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming technology. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of weld welding and arc welding with coated electrodes. Thermal cutting.  Bachelor Thesis  Technology II. formation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining econor programming of manufacture. Engineering metrology. Assembly techniques. Introduction to process planing.  Project Work on specialized tasks.  Specialization Project Project Bachelor Thesis Automatic Control	Z nical metals. Produ nnology. Hot and co ding. Fusion weldir  Z Z,ZK nics. Automation o  KZ  KZ  KZ  Z,ZK	3 action of pig old forging. ng: Flame  4 5 frocesses, 2 2 4 5
2333038 Production procesiron and steel. Ca Free and drop for 2333991 2341014 mechanics of chip 2342091 2352091 2362091 2363991 2371047 Automatic contro	Fundamentals of Technology I. sses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technology modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming technology. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of weld welding and arc welding with coated electrodes. Thermal cutting.  Bachelor Thesis  Technology II.  formation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining economy programming of manufacture. Engineering metrology. Assembly techniques. Introduction to process planing.  Project  Work on specialized tasks.  Specialization Project  Project  Bachelor Thesis  Automatic Control  Illers are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automatics.	Z nical metals. Produ nnology. Hot and coding. Fusion weldir  Z Z,ZK nics. Automation o  KZ  KZ  KZ  Z,ZK  ic control theory al	3 lection of pig old forging. hg: Flame  4 5 f processes,  2 2 4 5 nd practice
2333038 Production procesiron and steel. Ca Free and drop for 2333991 2341014 mechanics of chip 2342091 2352091 2362091 2363991 2371047 Automatic controlike transfer function	Fundamentals of Technology I. sses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technology materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming technology. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of welding and arc welding with coated electrodes. Thermal cutting.  Bachelor Thesis  Technology II.  formation, cutting processes, finishing operations, non-traditional machining processes. Production rates calculation, machining econor programming of manufacture. Engineering metrology. Assembly techniques. Introduction to process planing.  Project  Work on specialization Project  Project  Bachelor Thesis  Automatic Control  Illers are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automations, open versus closed loop control, design of controllers and frequency based analysis of control systems. The course also concentra	Z nical metals. Produ nnology. Hot and coding. Fusion weldir  Z Z,ZK nics. Automation o  KZ  KZ  KZ  Z,ZK ic control theory at tes on logic control	3 lection of pig old forging. ng: Flame  4 5 f processes,  2 2 4 5 nd practice I and control
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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			
2383009	Communication and Dealing with People	Z	2
Human communication represents an irreplaceable phenomenon in human activity, as it is present in practically all of his activities. The same applies (with specific modifications) to			
the activities of managers. So you can't not communicate - you can only communicate badly, well and excellently.			

For updated information see <a href="http://bilakniha.cvut.cz/en/FF.html">http://bilakniha.cvut.cz/en/FF.html</a> Generated: day 2025-10-20, time 12:10.