### Study plan

## Name of study plan: 07 40 45 50 BSTR IAT 2012 K základ

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

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

Required credits: 263

Elective courses credits: -26 Sum of credits in the plan: 237 Note on the plan: první pokus

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 216

The role of the block: P

Code of the group: 12B-KMENK TZI STR

Name of the group: 01 2012 souhrn skupin 12B\*KiP-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:

Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their Completion Credits Code Scope Semester Role members) Tutors, authors and guarantors (gar.) **Automatic Control** 2371047 Z.ZK 3P+15C+05L Milan Hofreiter, R žena Petrová, Tomáš Vyhlídal, Jaromír Fišer Tomáš Vyhlídal Tomáš Vyhlídal (Gar.) Chemistry Radek Šulc, Martin Dostál, Vojt ch B lohlav, Stanislav Solna , Jan Sko ilas 2182019 ΚZ 3 2P+1C 1 Radek Šulc Radek Šulc (Gar.) Machine Elements and Mechanisms I. Z,ZK 2131512 6 3P+2C Ρ František Lopot **Machine Elements and Mechanisms II** 2131026 ZK 3P+0C Eliška Cézová, Zden k ešpíro, Martin Dub, Jan Flek, Ji í Houkal, Jan Kanaval, František Lopot, Karel Petr František Lopot (Gar.) **Electric Circuits and Electronics** 2141504 Z.ZK 2P+06C+14L P Stanislava Papežová, Jan Chyský, Jaroslav Novák, Lukáš Novák Zuzana Sedlecká Jan Chyský (Gar.) **Electrical machines and drives** 2141505 Z,ZK 2P+06C+1.4L Jan Chyský, Jaroslav Novák, Lukáš Novák Jaroslav Novák Jaroslav Novák 2021041 Z,ZK 7 4P+1L Physics I. Р Z,ZK 1P+2L 2021025 4 3 Ρ Physics II. 2133025 Ζ 4 0P+4C Р František Lopot František Lopot (Gar.) **Constructive Geometry** 2011021 Z.ZK 3P+2C Р Ivana Linkeová Management and Economics of the Enterprise 2381054 Theodor Beran, Št pánka Uli ná, Vladimír Brdek, Ladislav Vaniš, Petr Žemli ka **Theodor Beran** Theodor Beran (Gar.) Z,ZK 4 2P+2C Р Mathematics I Radka Keslerová, Marta Hlavová, Ji í Holman, Gejza Dohnal, Marta ertíková, 2011056 Z,ZK 8 4P+4C Р Vladimír Hric, Nikola Pajerová, Petr Louda, Lukáš Hájek, ..... Radka Keslerová Gejza Dohnal (Gar.) Matematika II. Z,ZK 2011062 8 4P+4C Р Radka Keslerová Mathematics III Radka Keslerová, Ji í Holman, Gejza Dohnal, Marta ertíková, Vladimír Hric, 2011009 Z.ZK 5 2P+2C Р Jan Valášek, Lud k Beneš, Tomáš Bodnár, Tomáš Neustupa, ..... **Stanislav** Kra mar Stanislav Kra mar (Gar.)

2311101	Mechanics I. Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Zbyn k Šika, Zbyn k Šika Zbyn k Šika (Gar.)	Z,ZK	4	2P+2C	*	Р
2311102	Mechanics II. Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Zbyn k Šika, Václav Bauma Václav Bauma (Gar.)	Z,ZK	4	2P+2C	*	Р
2322029	Materials Science I.  Jana Sobotová, Eliška Gal íková, Ji í Cejp, Pavlína Hájková, Jan Kr il, Vladimír  Mára, Lucie Pilsová, Ta ana Vacková <b>Jana Sobotová</b> Jana Sobotová (Gar.)	KZ	3	2P+1L	2	Р
2321039	Materials Science II.  Jana Sobotová, Eliška Gal íková, Ji í Cejp, Pavlína Hájková, Jan Kr il, Vladimír Mára, Lucie Pilsová, Ta ana Vacková, Jan Walter, Jana Sobotová Jana Sobotová (Gar.)	Z,ZK	4	2P+2L	*	Р
2011049	Numerical Mathematics Radka Keslerová, Ji í Holman, Marta ertíková, Vladimír Hric, Petr Louda, Lukáš Hájek, Jan Valášek, Lud k Beneš, Tomáš Bodnár, Petr Svá ek Petr Svá ek (Gar.)	Z,ZK	4	2P+2C	4	Р
2012037	Computer Graphics Marta Hlavová, Ji í Holman, Nikola Pajerová, Martin Hanek, Jan Karel, Ivana Linkeová, Jaroslav Cibulka <b>Ivana Linkeová</b> Ivana Linkeová (Gar.)	KZ	3	1P+1C	*	Р
2372041	Computer Support for Study Vladimír Hlavá	KZ	3	1P+1C	*	Р
2181026	Momentum, Mass and Heat Transfer Martin Dostál, Vojt ch B Iohlav, Stanislav Solna, Jan Sko ilas, Tomáš Jirout, Adam Krupica, Ji í Moravec <b>Tomáš Jirout</b> Tomáš Jirout (Gar.)	Z,ZK	5	3P+1C	*	Р
2131002	Engineering Design II Eliška Cézová, Martin Dub, Jan Flek, Jan Kanaval, František Lopot, Karel Petr, Martin Havlí ek, Jan Hoidekr, Roman Uhlí Karel Petr Karel Petr (Gar.)	Z,ZK	4	2P+3C	2	Р
2133013	Engineering Design III.  Jan Kanaval, František Lopot, Jan Hoidekr, David Skalický, Roman Uhlí Jan Kanaval Jan Kanaval (Gar.)	Z	2	0P+2C	Z	Р
2133014	Engineering Design IV. František Lopot František Lopot (Gar.)	Z	2	0P+2C	L	Р
2372083	Measurement in Engineering Martin Novák, Vladimír Hlavá Martin Novák Martin Novák (Gar.)	KZ	3	1P+0C+2L	*	Р
K331068	Technology I	Z,ZK	5	16B	*	Р
K341014	Technology II.	Z,ZK	5	8KP+8KC	*	Р
2012035	Algorithmization and Programming Fundamentals Ji i Holman, Marta ertiková, Vladimír Hric, Lukáš Hájek, Jan Halama, Vladimír Prokop, Martin Hanek, Jan Karel, Josef Musil, Petr Svá ek Petr Svá ek (Gar.)	KZ	4	1P+2C	*	Р
2153005	Fundamentals of Energy Conversions	Z	1	1P+1C	*	Р
2383001	Fundamentals of Law Václav Pilík Václav Pilík (Gar.)	Z	2	1P+1C	*	Р

#### Characteristics of the courses of this group of Study Plan: Code=12B-KMENK TZI STR Name=01 2012 souhrn skupin 12B\*KiP-KMEN pro i od 1 do 6

Z,ZK 2371047 **Automatic Control** Automatic controllers are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automatic control theory and practice like transfer functions, open versus closed loop control, design of controllers and frequency based analysis of control systems. The course also concentrates on logic control and control via programmable logic controllers. Some seminaries are arranged in laboratories where practical skills and control engineering methods are trained. Students begin to work with

2182019 Chemistry

MATLAB software as a common platform of control engineers.

2141504

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

2131512 Machine Elements and Mechanisms I. Z,ZK 6

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

2131026 Machine Elements and Mechanisms II 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.

Z.ZK

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

2141505 Electrical machines and drives Z,ZK

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.

2021041	Dhygics I	Z,ZK	7
	Physics I.  namics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elast	1 '	· -
•	anics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. C		
	ic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and in		
measurements of	11 various experiments related to the lectures.		
2021025	Physics II.	Z,ZK	4
Faraday's law of ele	ectromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties o	f electromagnetic w	aves. Interaction
of radiation with ma	atter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom	and periodic syster	m of elements.
Spectra, x-rays, ;la	ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6	experiments related	d to the lecture
2133025	Design	Z	4
Design, design cal	culations and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft couplings and	d clutches.	
2011021	Constructive Geometry	Z,ZK	6
The subject is focu	sed on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.	<u> </u>	
2381054	Management and Economics of the Enterprise	Z,ZK	4
The subject is inter	nded to teach the students of the Faculty of Mechanical Engineering the basic economic starting points necessary for technical reasonable to teach the students of the Faculty of Mechanical Engineering the basic economic starting points necessary for technical reasonable to the students of the Faculty of Mechanical Engineering the basic economic starting points necessary for technical reasonable to the students of the Faculty of Mechanical Engineering the basic economic starting points necessary for technical reasonable to the students of the Faculty of Mechanical Engineering the basic economic starting points necessary for technical reasonable to the students of the students of the starting points necessary for the starting points are starting to the starting points of the starting points are starting to the starting points and the starting points are starting to the starting points and the starting points are starting to the starting points and the starting points are starting to the starting points and the starting points are starting to the starting points and the starting points are starting points.	soning and to help t	hem understar
the basic relations	hips between economic quantities costs - revenues, expenses - incomes and other basic economic terms. The goal is for the auc	dience to be able to	communicate
	organizations. every product or service is valued at a selling price and therefore it is necessary to understand the simple costing		=
	ounter reports and should understand the basic structure of financial statements. As a future manager, he will compile and appro	• •	_
-	ney will learn basic managerial functions and their content. Furthermore, they will learn how to use network analysis in project managerial functions are their content.	anagement. For dec	cision-making
	learn the applications of multi-criteria decision-making. The basics of marketing and strategic management will be introduced.		
2011056	Mathematics I	Z,ZK	8
	tter emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and conne		•
-	v the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic are	as: eigennumbers a	and eigenvecto
	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. Differ	· · · · · · · · · · · · · · · · · · ·	
	Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) inte	-	
	r, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and G		-
	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 vi	ector field through a	a surrace. The
Gauss-Ostrograds	· .	7.71	
2011009	Mathematics III	Z,ZK	5
	urse in ordinary differential equation and infinite series.		
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 the	ir systems with and	d without friction
	ed the methods of description of position and motion of particles and rigid bodies.		
2311102	Mechanics II.	Z,ZK	4
	t and of rigid bodies. Transformation matrix. Kinematics of concurrent movements. Motion: translation, rotation, general planar moti	· ·	
	tion. Composition of mechanisms. Basic planar mechanisms. Analytical methods in kinematics of mechanisms - Trigonometric and	i vector method. Gra	apnicai metnoc
	c theory of gearing. Transmition mechanisms with geers. Strutting and seezing in mechanisms. Cable mechanisms.	1.7	
2322029	Materials Science I.	KZ	3
	nt state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, de	=	
	ls, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations,	1	
2321039	Materials Science II.	Z,ZK	4
	netallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal a	and thermo-mechan	nical processing
	on alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materials.		
2011049	Numerical Mathematics	Z,ZK	4
	of systems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical solution of nonlinear algebraic equations.	erical solution of ord	dinary differenti
	nd boundary value problems. Numerical solution of basic linear partial differential equations by finite difference method.		
2012037	Computer Graphics	KZ	3
2372041	Computer Support for Study	KZ	3
The course introdu	ices students into creating technical and professional documents on computers or Web and into realizing technical computations v	with the use of com-	puters. Studen
gain practical skills	by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical	al-based WWW pag	ge.
2181026	Momentum, Mass and Heat Transfer	Z,ZK	5
Fundamentals of ti	ransport phenomena balances in homogeneous fluids. Navier-Stokes equations. Momentum transport in turbulent flows. Mechan	ical energy equation	n. Residence
time distributions ir	n continuous systems. Conduction heat transfer. Forced and natural convection heat transfer. Heat transfer with phase changes and	d thermal radiation.	Multicompone
systems. Mass trar	nsfer by molecular diffusion, convection, with chemical reactions and interphase mass transfer.		
2131002	Engineering Design II	Z,ZK	4
Principles of ISO G	GPS (Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, sur	face texture, geome	etrical toleranc
	tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice th	eir knowledge from	n lectures.
· ·	Engineering Design III.	Z	2
dimensional loops,			
dimensional loops, 2133013	y unit (draft drawing, detail drawing, assembly drawing, technical report)		2
dimensional loops, 2133013 Design of assembl		Z	
dimensional loops, 2133013 Design of assembl 2133014	Engineering Design IV.		
dimensional loops, 2133013 Design of assembl 2133014 2372083	Engineering Design IV.  Measurement in Engineering	KZ	3
dimensional loops, 2133013 Design of assembl 2133014 2372083 Overview of senso	Engineering Design IV.	KZ	3
dimensional loops, 2133013 Design of assembl 2133014 2372083 Overview of senso instruments.	Engineering Design IV.  Measurement in Engineering  r principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration ar	KZ nd verification of me	3 easurement
dimensional loops, 2133013 Design of assembl 2133014 2372083 Overview of senso instruments. K331068	Engineering Design IV.  Measurement in Engineering or principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration are  Technology I	KZ and verification of me	3 easurement 5
dimensional loops, 2133013 Design of assembl 2133014 2372083 Overview of senso instruments. K331068 Foundry properties	Engineering Design IV.  Measurement in Engineering  r principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration ar  Technology I  s of metals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of	KZ and verification of me	3 easurement 5
dimensional loops, 2133013 Design of assembl 2133014 2372083 Overview of senso instruments. K331068 Foundry properties	Engineering Design IV.  Measurement in Engineering or principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration are  Technology I	KZ and verification of me	3 easurement

2012035	Algorithmization and Programming Fundamentals	KZ	4						
Programming in MATLA	Programming in MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Matrices, vectors and operations.								
Writting M-script. Input	and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Sy	stems of linear e	quations. Scripts						
and functions. Structure	e of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. S	Structures. Algorith	nmization of						
simple programs: minim	simple programs: minimum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of systems of linear equations.								
2153005	Fundamentals of Energy Conversions	Z	1						

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

Code of the group: 12B\*K\*P-ZT12

Fundamentals of Law

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

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

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

Credits in the group: 6 Note on the group:

2383001

	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
K333038	Fundamentals of Technology I.	Z	3	8B	*	Р

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

K333038 Fundamentals of Technology I. Z 3

Production processes in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technical metals. Production of pig

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

Code of the group: 12BS\*7P-IAT

Name of the group: 12 2012 BSTR 7.sem povinné IAT

Requirement credits in the group: In this group you have to gain 29 credits

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

Credits in the group: 29

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
2361097	Design of Instruments	Z,ZK	5	3P+1C	*	Р
2371710	Computer Simulation Models	Z,ZK	4	2P+2C	*	Р
2373712	Project Vladimír Hlavá	Z	3	0P+2C	*	Р
2371524	Means of Automatic Control	Z,ZK	5	3P+0C+2L	*	Р
2371126	Programmable Controller Applications Pavel Trnka, Oto Vrána, Jakub Jura Jakub Jura Jakub Jura (Gar.)	Z,ZK	4	2P+0C+2L	*	Р
2362502	Technical optics	KZ	3	2P+15C+05L	*	Р

#### Characteristics of the courses of this group of Study Plan: Code=12BS\*7P-IAT Name=12 2012 BSTR 7.sem povinné IAT

2361097	Design of Instruments	Z,ZK	5					
Basics of instruments	design.		•					
2371710	Computer Simulation Models	Z,ZK	4					
The course provides a	basic knowledge on formulation and computer implementation of dynamical system models. It starts from theoretical issues of	of Laplace and Z t	ransform in their					
application to describi	ng the continuous and discrete linear systems respectively. A particular emphasis is given on the skills in describing the dynar	nic processes in t	he state space					
approach in both linea	rr and non-linear systems.							
2373712	Project	Z	3					
Breaf introduction to t	Breaf introduction to the SmartPlant projection software. The project from the informatics in the second half of this subject.							
2371524	Means of Automatic Control	Z,ZK	5					
Various categories of	arious categories of means for automatic control according to the different criterions. Main features in each category. Air and hydraulic fluid as a medium for information transfer.							

Symbols and descriptions in pneumatic and hydraulic diagrams. Pneumatic control systems design. Pneumatic actuators, valves, special pneumatic, electropneumatic devices. Control valves, categories, dimensioning, design, applications. Inteligent pneumatics as an integration of pneumatic, electronic and control components and systems. Valve islands and terminals, standard, with industrial buses communication, programmable. Pneumatic positioning systems.

2371126 **Programmable Controller Applications** 

Logic control, Theory of finite automaton - introduction, Petri nets -application for industrial processes control. Programmable Logic Controller (PLC), PLCs in distributed control systems, type sof PLC and application areas. Function principles of PLC, configuration, HW structure of PLC, PLC software. Standard IEC 1131-3: software, program mand communication model, common elements of programming languages, standard and derived functions and function blocks, structuring resource - sequential function diagram (SFC), programming languages LD, IL, ST and FBD. Control applications design -methodology. Software tools for PLC programming. Industrial processes visualization. Systems of PLCs, networking of PLCs, communication possibilities of PLCs. Industrial communication standards (Profibus, ASi). Laboratory exercises on technological models via PLCs: Teco, Festo, Schneider Electric, Siemens

2362502 Technical optics

The course gives a thorough interpretation of the principle of image forming by planar and spherical surfaces under the laws of geometric optics. It also deals with monochromatic and colour aberrations and basic visual instruments.

Code of the group: 12BS\*8P-IAT

Name of the group: 13 2012 BSTR 8.sem povinné IAT

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 6 courses

Credits in the group: 25 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
2362503	Applied Optics	KZ	4	2P+15C+05L	*	Р
2141519	Electrical Measurement and Diagnostics	Z,ZK	4	2P+0C+1L	*	Р
2372507	Informatic systems	KZ	4	2P+2C	*	Р
2141006	Embedded systems Jan Chyský	Z,ZK	4	2P+0C+2L	*	Р
2361005	Instrumental Technology	Z,ZK	4	2P+0C+2L	*	Р

Characteristics of the courses of this group of Study Plan: Code=12BS\*8P-IAT Name=13 2012 BSTR 8.sem povinné IAT

2362503	Applied Optics	KZ	4
The course introduc	es students to the functions of basic optical instruments and shows their applications.	•	
2141519	Electrical Measurement and Diagnostics	Z,ZK	4
The transmission of	signals in measure systems. Electromagnetic compatibility. Electronics measurements circuits and a conversion of signal for the	transmission.	
2372507	Informatic systems	KZ	4
Meanings of Informa	ation. Information theory. Channel capacity. Coding theory. Data coding, markup languages, XML. Cryptography. OSI Reference	Model. Transmissi	on media
(metallic, optical, wi	reless). Data link layer. Network layer, communication protocols, TCP/IP suite. Digitization of analog signals. Quantum information	n. Genetic informa	ation.
2141006	Embedded systems	Z,ZK	4
Computers and mice	rocomputers history. Block diagram of computer. Busses, processors, memories, input and output circuits. Single chip microcomp	uters, microcontro	ollers. Instructio
set, machine code,	assembler, ANSY-C language. Software and hardware tools for application developing. Simulator, emulator, logical analyzer. Cor	nputer interfaces.	Converters,
digital input and out	put. Analogous signal discretization, methods and errors of D/A and A/D conversion. Standard analogous signal. Interrupt syster	n. Practical labs a	re focused on
8051/52 microcomp	uter family.		
2361005	Instrumental Technology	Z,ZK	4
This subject gives s	tudents a detail review of technology used for instrumentation production.		

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 15

The role of the block: PV

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

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

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

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

Credits in the group: 2

Note on the group.

Ze skupiny humanitních předmětů nutno j e d e n absolvovat

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

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

2383009 Communication and Dealing with People

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

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

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

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

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

Credits in the group: 2

Note on the group:

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

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

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

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

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

Name of the group: 10 2012 BSTR 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:

Student si vybere předmět příslušný oboru, který studuje

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
2372091	Project	KZ	2	0P+2C	*	PV
2362091	Project	KZ	2	0P+2C	*	PV
2152091	Deparmental Project	KZ	2	0P+2C	*	PV
2182091	Project Tomáš Jirout	KZ	2	0P+2C	*	PV

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

2372091	Project	KZ	2			
An individual project from the branch of specialisation, which student will study on his/her magister level						
2362091	Project	KZ	2			

2152091	Deparmental Project	KZ	2			
2182091	Project	KZ	2			
Absolvent se seznámí s	Absolvent se seznámí se základy oboru Procesní technika.					

Code of the group: 12BS\*6Q-PP

Name of the group: 11 2012 BSTR 6. sem prezentace projekt

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:

2363091 nesepsán Student si vybere předmět příslušný oboru, který studuje

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
2153091	Presentation of Project	Z	4	4B	*	PV
2363091	Project Presentation	Z	4	4B		PV
2373091	Project presentation	Z	4	4B	*	PV
2183091	Project Presentation Tomáš Jirout	Z	4	0P+4C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12BS\*6Q-PP Name=11 2012 BSTR 6. sem prezentace projekt

2153091	Presentation of Project	Z	4			
2363091	Project Presentation	Z	4			
2373091	Project presentation	Z	4			
Diploma thesis or bach	elor work presentation. Student should study the presentation software possibilities and proposition of the department. Studen	nt should prepare	the presentation			
of actual version of his	diploma or bachelor work and present it in the face of the other student. The presentation will continue with discussion. Consi	equently, the work	should be			
presented as a pdf file	on a temporal web page.					
2183091	Project Presentation	Z	4			
Preparation and presentation of a given project theme.						

Code of the group: 12BS\*8Q-IAT-BP

Name of the group: 14 2012 BSTR 8.sem 1povvol IAT-BP

Requirement credits in the group: In this group you have to gain 5 credits

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

Credits in the group: 5 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2363985	Bachelor Thesis	Z	5	0P+6C		PV
2373985	Bachelor Thesis	Z	5	0P+6C	*	PV

Characteristics of the courses of this group of Study Plan: Code=12BS\*8Q-IAT-BP Name=14 2012 BSTR 8.sem 1povvol IAT-BP

2363985	Bachelor Thesis	Z	5
2373985	Bachelor Thesis	Z	5
Each student will solve	,		

Name of the block: Elective courses

Minimal number of credits of the block: 32

The role of the block: V

Code of the group: 12BS\*\*V-ALFA

Name of the group: 02 2012 ALFA volitelné pro STR

Requirement credits in the group: In this group you have to gain 32 credits

Requirement courses in the group: In this group you have to complete 12 courses

Credits in the group: 32

Note on the group: Předměty typu Alfa (A) nejsou u studijního programu B2341 Strojírenství povinné, avšak jsou

povinné u studijního programu B2342 Teoretický základ strojního inženýrství.

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
202A041	Physics I.	ZK	3	0P+0L	*	V
202A025	Physics II.A	ZK	2	0P+0C	*	V
201A021	Constructive Geometry A  Ivana Linkeová	ZK	3	0P+0C	*	V
201A056	Mathematics I.A Radka Keslerová	ZK	4	0P+0C	*	V
201A062	Mathematics II.A Radka Keslerová	ZK	4	0P+0C	*	V
201A009	Mathematics III.A Stanislav Kra mar	ZK	2	0P+0C	*	V
201A049	Numerical Mathematics A  Lud k Beneš	ZK	2	0P+0C	*	V

202A041	Physics I.	ZK	3
Kinematics and dyr	amics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic	properties of boo	ies. Oscillations
waves. Fluid mecha	nics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co	nductors, semico	nductors,
insulators. Magnetic	field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and inc	direct measureme	nts, regression,
measurements of 1	1 various experiments related to the lectures.		
202A025	Physics II.A	ZK	2
of radiation with ma	ctromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of tter. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom a er. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 e	nd periodic syste	n of elements.
201A021	Constructive Geometry A	ZK	3
The subject is focus	ed on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.		
201A056	Mathematics I.A	ZK	4
Introduction to linea	r algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable		
201A062	Mathematics II.A	ZK	4
Open and closed s	t, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differe	ntial operators di	/ (divergence)
	unction given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integ	ral, Fubini theorer	n. Transformatio
and curl (rotation). F			
, ,	cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Gr	een's theorem. A	potential vector
of integrals to polar			•
of integrals to polar	cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Gr of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector function.		•

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

Name of the group: 05 2012 doporu ené seminá e

Numerical Mathematics A

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

Credits in the group: 0

Note on the group:

201A049

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

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

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

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

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

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

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

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

Credits in the group: 0

## Note on the group:

2046155	members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2040133	English Conversation Ilona Šimice, Michele Le Blanc (Gar.)	Z	2	0P+2C	*	V
2046156	English Conversation Ilona Šimice, Michele Le Blanc	Z	2	0P+2C	L	V
2046071	English - Lower Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová	Z	2	0P+2C	L	V
2046070	English - Lower Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046074	English - Advanced Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová, Michaela Le Blanc <b>Michaela Schusová</b> Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046075	English - Advanced Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová, Michele Le Blanc Ilona Šimice Ilona Šimice (Gar.)	Z	2	0P+2C	L	V
2046072	English - Upper Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046073	English - Upper Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Ilona Šimice Ilona Šimice (Gar.)	Z	2	0P+2C	L	V
2046068	English - Beginners Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046069	English - Beginners Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Ilona Šimice	Z	2	0P+2C	L	V
2046126	Czech Lower Intermediate  Jaroslava Kommová	Z	2	0P+2C	L	V
2046125	Czech Lower Intermediate  Jaroslava Kommová	Z	2	0P+2C	Z	V
2046118	Czech -Advanced Jaroslava Kommová	Z	2	0P+2C	L	V
2046117	Czech - Advanced Jaroslava Kommová	Z	2	0P+2C	Z	V
2046127	Czech - Upper Intermediate  Jaroslava Kommová	Z	2	0P+2C	Z	V
2046128	Czech - Upper Intermediate  Jaroslava Kommová	Z	2	0P+2C	L	V
2046119	Czech Language for Beginners I.  Jaroslava Kommová	Z	2	0P+2C	Z	V
2046120	Czech Language for Beginners II.  Jaroslava Kommová	Z	2	0P+2C	L	V
2046086	French - Lower Intermediate Course Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046087	French - Lower Intermediate Course Michaela Schusová, Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	L	V
2046091	French - Advanced Michaela Schusová, Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	L	V
2046090	French - Advanced Michaela Schusová, Dušana Jirovská, Eliška Vítková Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046089	French - Upper Intermediate Michaela Schusová, Dušana Jirovská Dušana Jirovská (Gar.)	Z	2	0P+2C	L	V
2046088	French - Upper Intermediate Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	z	V
2046084	French - Beginners Michaela Schusová, Dušana Jirovská Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	z	V
2046085	French - Beginners' Course Michaela Schusová, Dušana Jirovská Michaela Schusová Dušana Jirovská (Gar.)	Z	2	0P+2C	L	V
2146060	Indonesian Language Course for Exchange	Z	2	0P+2C	*	V
2146061	Technical Indonesian - Course I.	Z	2	0P+2C	Z	V

2046078	German - Lower Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich <b>Michaela</b> Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046079	German - Lower Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046083	German - Advanced Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Jaroslava Kommová Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046082	German - Advanced Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046081	German - Upper Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška	Z	2	0P+2C	L	V
2046080	Vítková Jaroslava Kommová (Gar.)  German - Upper Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela	Z	2	0P+2C	Z	V
2046076	Schusová Michaela Schusová (Gar.)  German - Beginners  Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela	Z	2	0P+2C	Z	V
2046077	Schusová Petr Laurich (Gar.)  German - Beginners  Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška	Z	2	0P+2C	L	V
2046161	Vítková Jaroslava Kommová (Gar.)  Presentations in English	Z	2	0P+2C	*	V
2046166	Michaela Schusová  Presentations in Czech  Jaroslava Kommová	Z	2	0P+2C	*	V
2046162	Presentations in German Jaroslava Kommová, Eliška Vítková, Petr Laurich Jaroslava Kommová Jaroslava Kommová (Gar.)	Z	2	0P+2C	*	V
2046164	Presentations in Russian  Dušana Jirovská	Z	2	0P+2C	*	V
2046163	Presentations in French language  Dušana Jirovská <b>Dušana Jirovská</b>	Z	2	0P+2C	*	V
2046165	Presentations in Spanish Eliška Vitková	Z	2	0P+2C	*	V
2046137	Russian - Lower Intermediate Course Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046138	Russian - Lower Intermediate Course Michaela Schusová, Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046141	Russian - Advanced Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková <b>Michaela Schusová</b> Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046142	Russian - Advanced Michaela Schusová, Hana Volejníková, Dušana Jirovská <b>Dušana Jirovská</b>	Z	2	0P+2C	L	V
2046140	Russian - Upper Intermediate Michaela Schusová, Hana Volejníková, Dušana Jirovská <b>Dušana Jirovská</b>	Z	2	0P+2C	L	V
2046139	Russian - Upper Intermediate Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046136	Russian - Beginners Michaela Schusová, Hana Volejníková, Dušana Jirovská <b>Dušana Jirovská</b>	Z	2	0P+2C	L	V
2046135	Russian - Beginners Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková <b>Michaela Schusová</b> Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046099	Spanish - Lower Intermediate Michaela Schusová, Jaime Andrés Villagómez Eliška Vítková Jaime Andrés Villagómez (Gar.)	Z	2	0P+2C	L	V
2046098	Spanish - Lower Intermediate Michaela Schusová, Eliška Vítková, Jaime Andrés Villagómez Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046096	Spanish - Beginners Michaela Schusová, Eliška Vítková, Jaime Andrés Villagómez Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046097	Spanish - Beginners Michaela Schusová, Jaime Andrés Villagómez Jaime Andrés Villagómez Jaime Andrés Villagómez (Gar.)	Z	2	0P+2C	L	V
			_			

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

Marty a proteinao	•			
2046155	English Conversation	Z	2	
Improving communication	ve 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.				
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 and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improvement of professional language.				

	T		
2046070	English - Lower Intermediate	Z	2
•	early what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	em. writing in a sin	npie way abou
	and comprehension of simple texts. Improvement of professional language. A1 - A2.		-
2046074	English - Advanced	Z	2
•	on of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Write the control of the cont		
· ·	summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's fie	ad of studies witho	out difficulties.
	advanced level. B1 - B2.	7	-
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 I		
	in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and compre ts from student´s field of studies without difficulties. Grammar structures on advanced level.	nension of popula	r-scientific and
		Z	2
2046072	English - Upper Intermediate		_
	nguage skills taking into consideration professional English and common professional terminology. Comprehension of standar By life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1.	a English speech a	ina conversanc
2046073		Z	2
	English - Upper Intermediate  n European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional Er		
	ension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intern		
nowledge.	Tision of standard English speech and conversation about topics of everyday life - at school, at work, during nee time, or filtern	nediate level. broad	dening grannin
2046068	English - Beginners	Z	2
	English - Degitinets of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (p		
2046069	English - Beginners	Z Z	2
• •	n European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understar	iding and use of ba	asic expression
-	minology (professional language).	7 7	
2046126	Czech Lower Intermediate	Z	2
<del>-</del>	early what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	əm. vvriting in a sin	npie way abou
	and comprehension of simple texts. Improvement of professional language.		-
046125	Czech Lower Intermediate	Z	2
<del>-</del>	early what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about the	em. vvriting in a sin	npie way abou
	and comprehension of simple texts. Improvement of professional language.		
046118	Czech -Advanced	Z	2
	Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in (	_	
	discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compreher	ision of popular-sc	elentific and
	ts from student's field of studies without difficulties. Grammar structures on advanced level.		-
2046117	Czech -Advanced	Z	. 2
	ken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in	· ·	essing opinion
-	write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical a		-
2046127	Czech - Upper Intermediate	Z	. 2
-	d speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abil	ity to describe exp	eriences and
	one's opinions and plans. Reading and understanding general and technical texts.		
2046128	Czech - Upper Intermediate	Z	2
	n European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professiona		
0,	ension 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
nowledge technical la			
046119	Czech Language for Beginners I.	Z	2
-	eryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profes		
046120	Czech Language for Beginners II.	Z	2
• •	n European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understar	nding and use of ba	asic expressio
general scientific ter	minology (professional language).		
046086	French - Lower Intermediate Course	Z	2
	what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wi	riting in a simple wa	ay about famili
pics. Reading and co	mprehension of simple texts. Improvement of professional language.		
046087	French - Lower Intermediate Course	Z	2
apped to the level of	Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which	a student meets	at school or in
s/her free time and sp	peaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	of professional lan	iguage.
046091	French - Advanced	Z	2
apped to the level of	Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on to	pics familiar to the	student.
	ative speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a	nd understanding f	texts concerni
irrant issues and pop	ular scientific and technical articles.		
046090	French - Advanced	Z	2
omprehension of spo	ken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participation	on in discussions. F	Expressing
oinions. Written skills.	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and te	echnical articles.	
	French - Upper Intermediate	Z	2
046089	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of	comes across at w	ork, at school,
lapped to the level of	ılking about these topics. Ability to describe experiences and events, explain one´s opinions and plans. Reading and understa	0.0	
		Z	2
Mapped to the level of uring free time, and ta	French - Upper Intermediate	Z	
Mapped to the level of uring free time, and to 2046088 Inderstanding standar		Z	
lapped to the level of uring free time, and ta 2046088 Inderstanding standar vents, briefly explain o	French - Upper Intermediate d 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.	Z lity to describe exp	eriences and
lapped to the level of uring free time, and to 046088 nderstanding standar vents, briefly explain o 046084	French - Upper Intermediate d speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abil	Z lity to describe exp	eriences and

2046085 Mapped to the level of	French - Beginners' Course	7	2
mapped to the level of	French - Degitiners Course Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which		
	peaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of		
2146060	Indonesian Language Course for Exchange	Z	2
	nguage for Student Exchange Program to Indonesia	_ '	
2146061	Technical Indonesian - Course I.	Z	2
Second part of Indone	isian Language for Student Exchange Program to Indonesia	'	
2144062	Technical Indonesian - Course II.	Z,ZK	3
Basic of Indonesian La	nguage for Student Exchange Program to Indonesia	, ,	
2046078	German - Lower Intermediate Course	Z	2
Aim: Understanding cle	iarly 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 sin	nple way abou
familiar topics. Reading	and comprehension of simple texts. Improvement of professional language.		
2046079	German - Lower Intermediate Course	Z	2
	Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which		
	nd speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement		
2046083	German - Advanced Course	Z	2
* *	Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in		_
	in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compre ts from student's field of studies without difficulties. Grammar structures on advanced level.	enension or popula	ar-scientific an
2046082	German - Advanced Course	7	2
	German - Advanced Course ken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participation	_	_
	Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and te		Aprobbing
2046081	German - Upper Intermediate Course	Z	2
	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students co	_	
	Ilking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understa		
2046080	German - Upper Intermediate Course	Z	2
Understanding standa	d speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Abilit	ty to describe exp	eriences and
events, briefly explain	one's opinions and plans. Reading and understanding general and technical texts.		
2046076	German - Beginners	Z	2
Basic vocabulary of ev	eryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profess	sional language)	
2046077	German - Beginners	Z	2
Mapped to the level Co	mmon European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding	and use of basic	expressions of
general scientific termi	nology (professional language).		
2046161	Presentations in English	Z	2
Preparing students to	resent in English on technical topics, with a possible co-operation 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 departments.		
2046162	Presentations in German	Z	2
Preparation for presen	ing technical topics in German, possibly in cooperation with specialized departments.		
2046164	Presentations in Russian	Z	2
	ing technical topics in Russian, possibly in cooperation with specialized departments.		
2046163	Presentations in French language	_	2
	,	Z	_
	ing technical topics in French, possibly in cooperation with specialized departments.		
Preparation for presen 2046165	ing technical topics in French, possibly in cooperation with specialized departments.  Presentations in Spanish	Z	2
Preparation for presen 2046165 Preparation for presen	ing technical topics in French, possibly in cooperation with specialized departments.  Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.	Z	2
Preparation for presen 2046165 Preparation for presen 2046137	ing technical topics in French, possibly in cooperation with specialized departments.  Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.  Russian - Lower Intermediate Course	Z	2
Preparation for present 2046165 Preparation for present 2046137 Understanding clearly	Ing technical topics in French, possibly in cooperation with specialized departments.  Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.  Russian - Lower Intermediate Course what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wri	Z	2
Preparation for present 2046165 Preparation for present 2046137 Understanding clearly topics. Reading and co	Ing technical topics in French, possibly in cooperation with specialized departments.  Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.  Russian - Lower Intermediate Course what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wrimprehension of simple texts. Improvement of professional language.	Z Z iting in a simple w	2 2 ay about famili
Preparation for present 2046165 Preparation for present 2046137 Understanding clearly topics. Reading and co	Ing technical topics in French, possibly in cooperation with specialized departments.  Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.  Russian - Lower Intermediate Course what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wrimprehension of simple texts. Improvement of professional language.  Russian - Lower Intermediate Course	Z  Z  iting in a simple w	2 2 ay about famili 2
Preparation for present 2046165 Preparation for present 2046137 Understanding clearly topics. Reading and cot 2046138 Mapped to the level of	Ing technical topics in French, possibly in cooperation with specialized departments.  Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.  Russian - Lower Intermediate Course what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wrimprehension of simple texts. Improvement of professional language.  Russian - Lower Intermediate Course Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a stu	Z  iting in a simple was the set of the set	2 2 ay about famili 2
Preparation for present 2046165 Preparation for present 2046137 Understanding clearly topics. Reading and cot 2046138 Mapped to the level of free time and speaking	Ing technical topics in French, possibly in cooperation with specialized departments.    Presentations in Spanish	Z  iting in a simple was some at school language.	2 ay about famili 2 nool or in his/h
Preparation for present 2046165 Preparation for present 2046137 Understanding clearly topics. Reading and control 2046138 Mapped to the level of free time and speaking 2046141	Ing technical topics in French, possibly in cooperation with specialized departments.  Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.  Russian - Lower Intermediate Course what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wrimprehension of simple texts. Improvement of professional language.  Russian - Lower Intermediate Course  Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a stu about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of profest	Z  iting in a simple was simple was selected by the selected b	2 ay about famili 2 nool or in his/h
Preparation for present 2046165 Preparation for present 2046137 Understanding clearly topics. Reading and control 2046138 Mapped to the level of free time and speaking 2046141 Comprehension of sports	Ing technical topics in French, possibly in cooperation with specialized departments.  Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.  Russian - Lower Intermediate Course what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wrimprehension of simple texts. Improvement of professional language.  Russian - Lower Intermediate Course  Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a sturbut them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of profest Russian - Advanced ken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation	Z  iting in a simple was simple was set set set set set set set set set se	2 ay about famil 2 nool or in his/h
Preparation for present 2046165 Preparation for present 2046137 Understanding clearly opics. Reading and control 2046138 Mapped to the level of the time and speaking 2046141 Comprehension of spopinions. Written skills	Ing technical topics in French, possibly in cooperation with specialized departments.  Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.  Russian - Lower Intermediate Course what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wrimprehension of simple texts. Improvement of professional language.  Russian - Lower Intermediate Course  Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a sturn about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of profesting Russian - Advanced  ken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and te	Z  Iting in a simple was a school language.  Z  Ident meets at school language.  Z  Ident meets at school language.  Chool in discussions. In choical articles.	2 ay about famil 2 nool or in his/h 2 Expressing
Preparation for present 2046165 Preparation for present 2046137 Understanding clearly topics. Reading and concept 2046138 Mapped to the level of the time and speaking 2046141 Comprehension of spoppinions. Written skills 2046142	Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.    Russian - Lower Intermediate Course	Z  Iting in a simple was simple was selected at scheme to the sc	2 ay about famil 2 nool or in his/r 2 Expressing
Preparation for present 2046165 Preparation for present 2046137 Understanding clearly opics. Reading and co 2046138 Mapped to the level of the time and speaking 2046141 Comprehension of spopinions. Written skills 2046142 Mapped to the level of	Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.    Russian - Lower Intermediate Course	Z  Iting in a simple was at scheme to the sc	2 ay about famil 2 nool or in his/r 2 Expressing 2 ne student.
Preparation for present 2046165 Preparation for present 2046137 Understanding clearly opics. Reading and co 2046138 Mapped to the level of the time and speaking 2046141 Comprehension of spoopinions. Written skills 2046142 Mapped to the level of Communication with necessity and communication with necessity and communication of spoopinions.	Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.  Russian - Lower Intermediate Course 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 texts. Improvement of professional language.  Russian - Lower Intermediate Course Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a stude about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participatic Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and texts. Russian - Advanced Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on totive speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and stive speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and	Z  Iting in a simple was at scheme to the sc	2 ay about famil 2 nool or in his/r 2 Expressing 2 ne student.
Preparation for present 2046165 Preparation for present 2046137 Understanding clearly opics. Reading and co 2046138 Mapped to the level of the time and speaking 2046141 Comprehension of spopinions. Written skills 2046142 Mapped to the level of Communication with necurrant issues and populations.	Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.    Russian - Lower Intermediate Course	Z  Iting in a simple was at scheme to the simple was at simple was at scheme to the simple was at simple was at scheme to the simple was at simple was at simple was at scheme to the simple was at simple was at scheme to the scheme to the simple was at scheme to the sc	2 ay about famil 2 nool or in his/h 2 Expressing 2 ne student. texts concerni
Preparation for present 2046165 Preparation for present 2046137 Understanding clearly opics. Reading and co 2046138 Mapped to the level of ree time and speaking 2046141 Comprehension of spopinions. Written skills 2046142 Mapped to the level of Communication with neutrant issues and pop 2046140	Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.    Russian - Lower Intermediate Course 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 texts. Improvement of professional language.    Russian - Lower Intermediate Course   Russian - Lower Intermediate Course   Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a stu about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of profest   Russian - Advanced   Russian -	Z  Iting in a simple was at scheme to the scheme to the simple was at scheme to the sc	2 ay about famil  2 nool or in his/h  2 Expressing  2 ne student. texts concerni
Preparation for present 2046165 Preparation for present 2046137 Understanding clearly topics. Reading and concept 2046138 Mapped to the level of the time and speaking 2046141 Comprehension of spontinions. Written skills 2046142 Mapped to the level of Communication with necurrant issues and pop 2046140 Mapped to the level of 2046140 Mapped to the level of 2046140 Mapped to the level of 2046140	Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.    Russian - Lower Intermediate Course 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 texts. Improvement of professional language.    Russian - Lower Intermediate Course     Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a stu about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of profest     Russian - Advanced     Russian - Advanced     ken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and textive speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and ular scientific and technical articles.    Russian - Upper Intermediate     Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student matters t	Z  Iting in a simple was at scheme to the sc	2 ay about famil 2 nool or in his/h 2 Expressing 2 ne student. texts concerni 2 school, during
Preparation for present 2046165 Preparation for present 2046137 Understanding clearly topics. Reading and co 2046138 Mapped to the level of free time and speaking 2046141 Comprehension of spoopinions. Written skills 2046142 Mapped to the level of Communication with nocurrant issues and pop 2046140 Mapped to the level of free time, and talking a	Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.  Russian - Lower Intermediate Course what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wrimprehension of simple texts. Improvement of professional language.  Russian - Lower Intermediate Course Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a stu about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of profes Russian - Advanced ken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participatic Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and te Russian - Advanced Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to tive speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and under scientific and technical articles.  Russian - Upper Intermediate Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student motout these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understandout these topics. Ability to describe experiences and events, briefly explain one's opinions and plans.	Z  Iting in a simple was at scheme to the sc	2 ay about famil 2 nool or in his/h 2 Expressing 2 ne student. texts concerni 2 school, during d technical tex
Preparation for present 2046165 Preparation for present 2046137 Understanding clearly topics. Reading and co 2046138 Mapped to the level of free time and speaking 2046141 Comprehension of spoopinions. Written skills 2046142 Mapped to the level of Communication with nocurrant issues and pop 2046140 Mapped to the level of free time, and talking a 2046139	Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.    Russian - Lower Intermediate Course     What is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing the spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing the spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in provement of professional language.    Russian - Lower Intermediate Course     Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a stude about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and textive speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and under scientific and technical articles.    Russian - Upper Intermediate	Z  Iting in a simple was a scheme to the simple was at scheme test at scheme test at scheme test and language.  Z  It in the simple was a scheme test at work, at sending general and Z	2 ay about famil 2 nool or in his/h 2 Expressing 2 ne student. texts concerni 2 school, during d technical tex 2
Preparation for present 2046165 Preparation for present 2046137 Understanding clearly topics. Reading and co 2046138 Mapped to the level of free time and speaking 2046141 Comprehension of spoopinions. Written skills 2046142 Mapped to the level of Communication with nocurrant issues and pop 2046140 Mapped to the level of free time, and talking a 2046139 Understanding standar	Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.    Russian - Lower Intermediate Course what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wrimprehension of simple texts. Improvement of professional language.    Russian - Lower Intermediate Course what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wrimprehension of simple texts. Improvement of professional language.    Russian - Lower Intermediate Course	Z  Iting in a simple was a scheme to the simple was at scheme test at scheme test at scheme test and language.  Z  It in the simple was a scheme test at work, at sending general and Z	2 ay about famil  2 nool or in his/h  2 Expressing  2 ne student. texts concerni  2 school, during d technical text
Preparation for present 2046165 Preparation for present 2046137 Understanding clearly topics. Reading and control 2046138 Mapped to the level of free time and speaking 2046141 Comprehension of specipinions. Written skills 2046142 Mapped to the level of Communication with nucurrant issues and pop 2046140 Mapped to the level of free time, and talking a 2046139 Understanding standal events, briefly explain	Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.    Russian - Lower Intermediate Course what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wrimprehension of simple texts. Improvement of professional language.    Russian - Lower Intermediate Course what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wrimprehension of simple texts. Improvement of professional language.    Russian - Lower Intermediate Course	Z  Iting in a simple was a scheme to the simple was at scheme test at scheme test at scheme test and in the simple was a scheme test at work, at sending general and the scheme test at the scheme test	2 ay about famil  2 nool or in his/h  2 Expressing  2 ne student. texts concerni  2 school, during d technical tex  2 eriences and
Preparation for present 2046165 Preparation for present 2046137 Understanding clearly topics. Reading and co 2046138 Mapped to the level of free time and speaking 2046141 Comprehension of spoopinions. Written skills 2046142 Mapped to the level of Communication with nocurrant issues and pop 2046140 Mapped to the level of free time, and talking a 2046139 Understanding standal events, briefly explain a 2046136	Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.    Russian - Lower Intermediate Course what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wrimprehension of simple texts. Improvement of professional language.    Russian - Lower Intermediate Course what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wrimprehension of simple texts. Improvement of professional language.    Russian - Lower Intermediate Course   Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a student them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and textitive speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and ular scientific and technical articles.    Russian - Upper Intermediate   Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student mobut these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to residence of popular scientific and technical articles.    Russian - Beginners	Z  Iting in a simple was a scheme to the simple was at scheme to the simple and the simple was a scheme to the simple was a scheme to the describe at work, at sending general and the simple was a scheme to the simple was at sending general and the simple was a scheme to the scheme to the simple was a scheme to the simple was a scheme to the simple was a scheme to the sch	2 ay about famil  2 nool or in his/r  2 Expressing  2 ne student. texts concerni  2 school, during d technical tex  2 reriences and
Preparation for present 2046165 Preparation for present 2046137 Understanding clearly opics. Reading and control of the level of the level of the level of comprehension of spontaneous Written skills. 2046142 Mapped to the level of Communication with notarrant issues and popinions. Written skills of communication with notarrant issues and popinions. Written skills. 2046140 Mapped to the level of the level	Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.    Russian - Lower Intermediate Course what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wrimprehension of simple texts. Improvement of professional language.    Russian - Lower Intermediate Course what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wrimprehension of simple texts. Improvement of professional language.    Russian - Lower Intermediate Course   Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a stude about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and textitive speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and ular scientific and technical articles.    Russian - Upper Intermediate   Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student mobut these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability and the second plans. Reading and understanding general and technical texts.    Russian - Beginners	Z  Iting in a simple was a scheme to the simple was at scheme to the simple and the simple was a scheme to the simple was a scheme to the describe at work, at sending general and the simple was a scheme to the simple was at sending general and the simple was a scheme to the scheme to the simple was a scheme to the simple was a scheme to the simple was a scheme to the sch	2 ay about famil  2 nool or in his/h  2 Expressing  2 ne student. texts concerni  2 school, during d technical tex  2 reriences and
Preparation for present 2046165 Preparation for present 2046137 Understanding clearly topics. Reading and co 2046138 Mapped to the level of free time and speaking 2046141 Comprehension of spoopinions. Written skills 2046142 Mapped to the level of Communication with nocurrant issues and pop 2046140 Mapped to the level of free time, and talking a 2046139 Understanding standarevents, briefly explain a 2046136 Mapped to the level of 2046136 Mapped to the level of	Presentations in Spanish ing technical topics in Spanish, possibly in cooperation with specialized departments.    Russian - Lower Intermediate Course what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wrimprehension of simple texts. Improvement of professional language.    Russian - Lower Intermediate Course what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wrimprehension of simple texts. Improvement of professional language.    Russian - Lower Intermediate Course   Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a student them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and textitive speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and ular scientific and technical articles.    Russian - Upper Intermediate   Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student mobut these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to residence of popular scientific and technical articles.    Russian - Beginners	Z  Iting in a simple was a scheme to the simple was at scheme to the simple and the simple was a scheme to the simple was a scheme to the describe at work, at sending general and the simple was a scheme to the simple was at sending general and the simple was a scheme to the scheme to the simple was a scheme to the simple was a scheme to the simple was a scheme to the sch	2 ay about famil  2 nool or in his/h  2 Expressing  2 ne student. texts concerni  2 school, during d technical tex  2 reriences and

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				
free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.				
2046098	Spanish - Lower Intermediate	Z	2	
Understanding clearly w	hat is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Wri	iting in a simple w	ay about familiar	
topics. Reading and comprehension of simple texts. Improvement of professional language.				
2046096	Spanish - Beginners	Z	2	
Aim:Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about				
familiar topics. Reading and comprehension of simple texts. Improvement of professional language.				
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				
his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.				

## List of courses of this pass:

Code	Name of the course	Completion	Credits
2011009	Mathematics III	Z,ZK	5
	An introductory course in ordinary differential equation and infinite series.		
2011021	Constructive Geometry  The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relation.	Z,ZK ons.	6
2011049	Numerical Mathematics	Z,ZK	4
	of systems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical equations, initial and boundary value problems. Numerical solution of basic linear partial differential equations by finite difference	solution of ordinar	y differentia
2011056	Mathematics I	Z,ZK	8
In the course, grea	ter emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connection the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: e of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.	s between concep	ts. Students
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. Different		ivergence)
and curl (rotation). I	Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral,	Fubini theorem. Tra	nsformation
of integrals to pola	r, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green	n's theorem. A pote	ential vector
field, independen	ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vecto Gauss-Ostrogradskij theorem.	r field through a su	urface. The
2012035	Algorithmization and Programming Fundamentals	KZ	4
Programming in	MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Matri	ces, vectors and o	perations.
Writting M-script. In	nput and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Syste	ms of linear equati	ons. Script:
	tructure of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. St		
simple programs	s: minimum, mean, norm, numerical integration, bisection method, Newton method, matrix operations. Direct methods for solution of	systems of linear e	quations.
2012037	Computer Graphics	KZ	3
2016007	Mathematics I Seminar	Z	2
201A009	Mathematics III.A	ZK	2
201A021	Constructive Geometry A	ZK	3
	The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relation	ons.	
201A049	Numerical Mathematics A	ZK	2
201A056	Mathematics I.A	ZK	4
	Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable		
201A062	Mathematics II.A	ZK	4
	set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Different		iveraence)
-	Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral,		
of integrals to pola	r, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Greer	n's theorem. A pote	ential vector
field, independen	ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vecto	r field through a su	urface. The
	Gauss-Ostrogradskij theorem.		
	Physics II.	Z,ZK	4
2021025	FIIVOICO II.		
	FILYSICS II. ectromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of elec		<ol> <li>Interaction</li> </ol>
Faraday's law of ele	Į	tromagnetic waves	
Faraday's law of ele of radiation with n	ectromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of elec	tromagnetic waves	elements.
Faraday's law of ele of radiation with n	ectromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and	tromagnetic waves	elements.
Faraday's law of ele of radiation with n Spectra, x-rays, ;la 2021041	ectromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 expe	tromagnetic waves periodic system of riments related to t Z,ZK	f elements. he lectures
Faraday's law of ele of radiation with n Spectra, x-rays, ;la 2021041 Kinematics and dyn	extromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiments of 6 experiments.	tromagnetic waves periodic system of riments related to t Z,ZK perties of bodies. (	f elements. the lectures 7 Oscillations
Faraday's law of ele of radiation with n Spectra, x-rays, ;la 2021041 Kinematics and dy waves. Fluid m	extromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiments of 5 experiments.  Physics I.  namics of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic pro-	tromagnetic waves periodic system of riments related to t Z,ZK perties of bodies. ( nductors, semicon	f elements. he lectures 7 Oscillations ductors,
Faraday's law of ele of radiation with n Spectra, x-rays, ;la 2021041 Kinematics and dy waves. Fluid m	extromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiments of 6 experiments. In a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic procechanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co	tromagnetic waves periodic system of riments related to t Z,ZK perties of bodies. ( nductors, semicon	f elements. he lectures 7 Oscillations ductors,
Faraday's law of ele of radiation with n Spectra, x-rays, ;la 2021041 Kinematics and dy waves. Fluid m	extromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic. Photoelectric effect. Wave-particle mature of matter. Quantum-mechanical description of particle's motion. Hydrogen atom and ser. Band theory of solids, semiconductors. Nucleus, radioactivity, sources of nuclear energy. Laboratories - measurements of 6 experiments of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic procechanics. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co ic field. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and indirect.	tromagnetic waves periodic system of riments related to t Z,ZK perties of bodies. ( nductors, semicon	f elements. he lectures 7 Oscillations ductors,

202A025 Physics II.A ZK 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. 202A041 Physics I. 7K 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. 2041061 English-Bachelor Exam Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. 2041062 German - Bachelor Exam / FME Z,ZK 2 Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. 2041063 French - Bachelor Exam /FME 7.7K 2 Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. 2041064 Spanish - Bachelor Exam / FME Z,ZK 2 Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions 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 Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions, to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level. 2046068 English - Beginners Ζ 2 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional language). A1 2046069 English - Beginners 7 2 Mapped to the Common European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional language). 2046070 English - Lower Intermediate Ζ 2 Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2. Ζ English - Lower Intermediate 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 and speaking about them. Writing in a simple way about familiar topics, reading and comprehension of simple texts. Improvement of professional language. 2046072 English - Upper Intermediate 2 The aim is to extend language skills taking into consideration professional English and common professional terminology. Comprehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1. 2046073 English - Upper Intermediate 2 Mapped to the Common European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional English and common professional terminology. Comprehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. 2046074 English - Advanced 7 2 The aim: comprehension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay, reading and comprehension of popular-scientific and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level. B1 - B2. 2046075 English - Advanced 7 2 Mapped to the Common European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level. 2046076 German - Beginners Ζ 2 Basic vocabulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (professional language) 2046077 German - Beginners 7 2 Mapped to the level Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (professional language). 2046078 German - Lower Intermediate Course Ζ 2 Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language. 2046079 German - Lower Intermediate Course Mapped to the level of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a student meets either at school or in his/her free time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement of professional language. German - Upper Intermediate Course 2046080 2 Understanding standard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understanding general and technical texts. German - Upper Intermediate Course Mapped to the level of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar topics, that a students comes across at work, at school, during free time, and talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding general and technical texts. 2046082 German - Advanced Course Comprehension of spoken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technical articles.

2046083			
2040000	German - Advanced Course	Z	2
	l of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in G		
and active participa	ation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehe	nsion of popular-se	cientific and
0040004	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.	_	
2046084	French - Beginners	Z	2
Understanding clea	rly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing topics. Reading and comprehension of simple texts. Improvement of professional language.	g in a simple way a	bout familiar
2046095		7	2
2046085	French - Beginners´ Course el of Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations which a	. –	_
	e and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement		
2046086	French - Lower Intermediate Course	7	2
	rily what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	_	l
onderotanding old	topics. Reading and comprehension of simple texts. Improvement of professional language.	y a op.oay a	oour amma.
2046087	French - Lower Intermediate Course	Z	2
Mapped to the lev	el of Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations which a	student meets at s	chool or in
his/her free tim	e and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	of professional lar	nguage.
2046088	French - Upper Intermediate	Z	2
Understanding sta	andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	to describe experi	ences and
	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.		
2046089	French - Upper Intermediate	Z	2
Mapped to the lev	el of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students con	nes across at work	, at school,
during free time, an	d talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understandi	ng general and ted	hnical texts.
2046090	French - Advanced	Z	2
Comprehension	of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participatior	n in discussions. Ex	kpressing
	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a		
2046091	French - Advanced	Z	2
	evel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on to	pics familiar to the	I
Communication wit	h native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and u	Inderstanding texts	concerning
	currant issues and popular scientific and technical articles.		
2046096	Spanish - Beginners	Z	2
	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Writing in a simple	way about
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		-
2046097	Spanish - Beginners	Z	2
	ommon European Framework of Reference Level A1. Aim: Understanding clearly what is spoken about everyday situations which a	student meets at so	ı
his/her free tim	e and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement	of professional lar	nguage.
2046098	Spanish - Lower Intermediate	Z	2
	· ·		
Uniderstanding clea	rly 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 a	I
Officerstationing clea	rry what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. writing topics. Reading and comprehension of simple texts. Improvement of professional language.	g in a simple way a	I
2046099	topics. Reading and comprehension of simple texts. Improvement of professional language.	in a simple way a	I
2046099	topics. Reading and comprehension of simple texts. Improvement of professional language.  Spanish - Lower Intermediate	Z	bout familiar
2046099 Mapped to the leve	topics. Reading and comprehension of simple texts. Improvement of professional language.	Z nt meets at school	bout familiar  2 or in his/her
2046099 Mapped to the leve free time a	topics. Reading and comprehension of simple texts. Improvement of professional language.  Spanish - Lower Intermediate  I of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a studer and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	Z nt meets at school professional langua	2 or in his/her
2046099 Mapped to the leve free time a 2046117	topics. Reading and comprehension of simple texts. Improvement of professional language.  Spanish - Lower Intermediate  I of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a studer a speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of Czech -Advanced	Z nt meets at school professional langua	2 or in his/her age.
2046099 Mapped to the leve free time a 2046117 Comprehension of s	topics. Reading and comprehension of simple texts. Improvement of professional language.  Spanish - Lower Intermediate  I of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a studer and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	Z nt meets at school professional langua Z cussions. Expressi	2 or in his/her age.
2046099 Mapped to the lever free time a 2046117 Comprehension of Writte	topics. Reading and comprehension of simple texts. Improvement of professional language.  Spanish - Lower Intermediate  I of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a studer and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of Czech -Advanced  spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in disensing the students of the students of the students. A spoken language as well as lectures in Czech on topics familiar to the students. Communication with native speakers, participation in disensing the students.	Z nt meets at school professional langua Z cussions. Expressi echnical articles.	2 or in his/her age. 2 ng opinions.
2046099 Mapped to the leve free time a 2046117 Comprehension of Writte 2046118	topics. Reading and comprehension of simple texts. Improvement of professional language.  Spanish - Lower Intermediate  I of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a studer and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of Czech -Advanced  spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in dis	Z nt meets at school professional langua Z cussions. Expressi echnical articles. Z	2 or in his/her age. 2 ng opinions.
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2046099 Mapped to the lever free time a 2046117 Comprehension of Writte 2046118 Mapped to the lever	topics. Reading and comprehension of simple texts. Improvement of professional language.  Spanish - Lower Intermediate  I of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a studer and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of proceed as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in discensively and understanding texts concerning currant issues and popular scientific and to Czech -Advanced  I of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czech.	Z nt meets at school professional langua Z cussions. Expressi echnical articles. Z ch without great dif	2 or in his/her age. 2 ng opinions. 2 ficulties and
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2046099 Mapped to the leve free time a 2046117 Comprehension of Writte 2046118 Mapped to the leve active participation 2046119	topics. Reading and comprehension of simple texts. Improvement of professional language.  Spanish - Lower Intermediate  If of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a studer and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of proceed as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in disensials. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to Czech -Advanced  If of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czecon in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehension scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.	Z nt meets at school professional langua Z cussions. Expressi echnical articles. Z ch without great diffsion of popular-scie	2 or in his/her age. 2 ng opinions. 2 ficulties and entific and
2046099 Mapped to the leve free time a 2046117 Comprehension of Writte 2046118 Mapped to the leve active participation 2046119	topics. Reading and comprehension of simple texts. Improvement of professional language.  Spanish - Lower Intermediate  I of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a studer and speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of provided spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in dispension of skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to Czech -Advanced  I of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czech in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehension in a discussion of texts from student's field of studies without difficulties. Grammar structures on advanced level.  Czech Language for Beginners I.  Ibulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p	Z nt meets at school professional langua Z cussions. Expressi echnical articles. Z ch without great diffsion of popular-scie	2 or in his/her age. 2 ng opinions. 2 ficulties and entific and
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onderetainaing et	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.	то досотье опрот	01.000 a.i.a
2046140	Russian - Upper Intermediate	Z	2
1 '''	vel of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student median about the second standard speech about familiar matters that a student median about the second speech about familiar matters that a student median about the second speech about familiar matters that a student median about the second speech about familiar matters that a student median about the second speech about familiar matters that a student median about the second speech about familiar matters that a student median according to the second speech about familiar matters that a student median according to the second speech about familiar matters that a student median speech according to the second speech about familiar matters and speech about familiar matters are speech about familiar matters and speech about familiar matters are speech about familiar matters and speech about familiar matters are speech about familiar matters.		
2046141	ng about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understandir  Russian - Advanced	ng general and tech	nnicai texts.
	of spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation	<b>∠</b> n in discussions. E	
1	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a		
2046142	Russian - Advanced	Z	2
1	evel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to	-	
Communication wil	th native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and u currant issues and popular scientific and technical articles.	nderstanding texts	concerning
2046155	English Conversation	Z	2
	Improving communicative skills in speaking on general topics and general technical topics.		
2046156	English Conversation  Improving communicative skills in speaking on general topics and general technical topics.	Z	2
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  Preparation for presenting technical topics in German, possibly in cooperation with specialized departments.	Z	2
2046163	Presentations in French language	Z	2
0040404	Preparation for presenting technical topics in French, possibly in cooperation with specialized departments.		
2046164	Presentations in Russian  Preparation for presenting technical topics in Russian, possibly in cooperation with specialized departments.	Z	2
2046165	Presentations in Spanish	Z	2
2046166	Preparation for presenting technical topics in Spanish, possibly in cooperation with specialized departments.  Presentations in Czech	Z	2
2040100	Preparing students to give presentations in English on technical topics, with a possible co-operation with specialized departments		2
2131002	Engineering Design II	Z,ZK	4
	SPS (Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface tops, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice their	_	
2131026	Machine Elements and Mechanisms II		lectures
	Machine Elements and Mechanisms II	ZK	lectures.
Preliminary design	, design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, p	ZK	3
	, design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, pand fittings.	ZK Dipelines and their	3 accessories
2131512	, design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, pand fittings.  Machine Elements and Mechanisms I.	ZK  ipelines and their a	3 accessories
2131512 Joints and joining e	, design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, pand fittings.	ZK Dipelines and their a Z,ZK Dipelines and their a	3 accessories  6 ansmissions
2131512  Joints and joining e (belt, chain, fricti	, design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, pand fittings.  Machine Elements and Mechanisms I.  elements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, ke	ZK pipelines and their a Z,ZK pys). Mechanical tradictions to the connecting bolts,	3 accessories 6 ansmissions clamped,
2131512 Joints and joining e (belt, chain, fricti pressed, splined ar	A design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, pand fittings.  Machine Elements and Mechanisms I.  Elements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, ke ion, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded and key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple assem seminar work.	ZK Dipelines and their a Z,ZK Dipels Nechanical traction to the connecting bolts, and units is also income.	3 accessories 6 ansmissions clamped, dispensable
2131512  Joints and joining e (belt, chain, fricti	, design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, pand fittings.  Machine Elements and Mechanisms I.  elements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, ke ion, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded and key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple assem seminar work.  Engineering Design III.	ZK pipelines and their a Z,ZK pys). Mechanical tradictions to the connecting bolts,	3 accessories 6 ansmissions clamped,
2131512 Joints and joining e (belt, chain, fricti pressed, splined ar	design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, pand fittings.  Machine Elements and Mechanisms I.  Elements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, ke ion, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded and key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple assem seminar work.  Engineering Design III.  Design of assembly unit (draft drawing, detail drawing, assembly drawing, technical report)	ZK Dipelines and their at Z,ZK Dipels. Mechanical trades at connecting bolts, and units is also income.	3 accessories 6 ansmissions clamped, dispensable 2
2131512 Joints and joining e (belt, chain, fricti pressed, splined ar 2133013	design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, pand fittings.  Machine Elements and Mechanisms I.  Elements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, ke ion, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded and key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple assem seminar work.  Engineering Design III.  Design of assembly unit (draft drawing, detail drawing, assembly drawing, technical report)  Engineering Design IV.	ZK Dipelines and their a Z,ZK Dipels Nechanical traction to the connecting bolts, and units is also income.	3 accessories 6 ansmissions clamped, dispensable
2131512 Joints and joining e (belt, chain, fricti pressed, splined ar 2133013  2133014 2133025	design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, pand fittings.  Machine Elements and Mechanisms I.  Elements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, ke ion, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded and key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple assem seminar work.  Engineering Design III.  Design of assembly unit (draft drawing, detail drawing, assembly drawing, technical report)	ZK Dipelines and their and	3 accessories 6 ansmissions clamped, dispensable 2
2131512 Joints and joining e (belt, chain, fricti pressed, splined ar 2133013  2133014 2133025	A design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, pand fittings.    Machine Elements and Mechanisms I.	ZK Dipelines and their and	3 accessories 6 ansmissions clamped, dispensable 2
2131512 Joints and joining e (belt, chain, fricti pressed, splined an 2133013  2133014 2133025 Design 2141006 Computers and mice	Machine Elements and Mechanisms I.  Elements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, ke ion, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded and key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple assem seminar work.  Engineering Design III.  Design of assembly unit (draft drawing, detail drawing, assembly drawing, technical report)  Engineering Design IV.  Design  n, design calculations and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft coupli Embedded systems  crocomputers history. Block diagram of computer. Busses, processors, memories, input and output circuits. Single chip microcomputer	ZK pipelines and their a  Z,ZK pys). Mechanical tradiconnecting bolts, nbly units is also incended as a connecting bolts, nbly units a	3 accessories 6 ansmissions clamped, dispensable 2 4 Linstruction
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2131512 Joints and joining e (belt, chain, fricti pressed, splined an 2133013  2133014 2133025 Design 2141006 Computers and min set, machine coordigital input and collistic control of the control of th	Machine Elements and Mechanisms I.  Belements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, ke ion, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded and key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple assems seminar work.  Engineering Design III.  Design of assembly unit (draft drawing, detail drawing, assembly drawing, technical report)  Engineering Design IV.  Design  In, design calculations and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft coupling to the processors, memories, input and output circuits. Single chip microcomputer de, assembler, ANSY-C language. Software and hardware tools for application developing. Simulator, emulator, logical analyzer. Computput. Analogous signal discretization, methods and errors of D/A and A/D conversion. Standard analogous signal. Interrupt system. 8051/52 microcomputer family.  Electric Circuits and Electronics  heory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of expectations. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilizer)	ZK pipelines and their a  Z,ZK pys). Mechanical tradiconnecting bolts, obly units is also incompleted by the second bolts.  Z  Z  ings and clutches.  Z,ZK rs, microcontrollers outer interfaces. Corpractical labs are for the second bolts.  Z,ZK energy. El. Power ar, power control, open control, o	3 accessories 6 ansmissions clamped, dispensable 2 4 4 a. Instruction priverters, occused on 4 nd Energy.
2131512 Joints and joining e (belt, chain, fricti pressed, splined an 2133013  2133014 2133025 Design 2141006 Computers and mis set, machine coordigital input and colligital inp	Machine Elements and Mechanisms I.  Idements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, ke ion, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded and key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple assembly unit (draft drawing, detail drawing, assembly drawing, technical report)  Engineering Design IV.  Design  n, design calculations and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft coupling to the processor of program of the program of	ZK pipelines and their a  Z,ZK pys). Mechanical tradiconnecting bolts, obly units is also incompleted by the second control of the second control of the second control of the second control of the second control, operation of the second control of the second contr	3 accessories 6 ansmissions clamped, dispensable 2 4 4 a. Instruction onverters, ocused on 4 nd Energy. perational 4 onstruction,
2131512 Joints and joining e (belt, chain, fricti pressed, splined an 2133013  2133014 2133025 Design 2141006 Computers and min set, machine coordigital input and colligital input and colligital input and colligital controduction into the Introduction Introduction Into the Introduction Introducti	Machine Elements and Mechanisms I.    Machine Elements and Mechanisms I.	ZK pipelines and their a  Z,ZK pys). Mechanical tradiconnecting bolts, obly units is also incompleted by the second control of the second control of the second control of the second control of the second control, operation of the second control, operation of the second control of the s	3 accessories 6 ansmissions clamped, dispensable 2 4 4 a. Instruction proverters, occused on 4 nd Energy, perational 4 postruction, tic, speed
2131512 Joints and joining e (belt, chain, fricti pressed, splined an 2133013  2133014 2133025 Design 2141006 Computers and min set, machine coordigital input and colligital input and colligital input and colligital controduction into the Introduction Introduction Into the Introduction Introducti	Machine Elements and Mechanisms I.  Idements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, ke ion, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded and key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple assembly unit (draft drawing, detail drawing, assembly drawing, technical report)  Engineering Design IV.  Design  n, design calculations and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft coupling to the processor of program of the program of	ZK pipelines and their a  Z,ZK pys). Mechanical tradiconnecting bolts, obly units is also incompleted by the second control of the second control of the second control of the second control of the second control, operation of the second control, operation of the second control of the s	3 accessories 6 ansmissions clamped, dispensable 2 4 4 a. Instruction converters, ocused on 4 nd Energy. perational 4 construction, tic, speed
2131512 Joints and joining e (belt, chain, fricti pressed, splined an 2133013  2133014 2133025 Design 2141006 Computers and min set, machine coordigital input and colligital inp	Machine Elements and Mechanisms I.  lements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, ke ion, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded not key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple assem seminar work.  Engineering Design III.  Design of assembly unit (draft drawing, detail drawing, assembly drawing, technical report)  Engineering Design IV.  Design n, design calculations and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft coupling transmissions, axles and shafts, sliding and rolling bearings, shaft coupling transmissions, axles and shafts, sliding and rolling bearings, shaft coupling transmissions, axles and shafts, sliding and rolling bearings, shaft coupling transmissions, axles and shafts, sliding and rolling bearings, shaft coupling transmissions, axles and shafts, sliding and rolling bearings, shaft coupling transmissions, axles and shafts, sliding and rolling bearings, shaft coupling, assembler, and shafts, sliding and rolling bearings, shaft coupling transmissions, axles and shafts, sliding and rolling bearings, shaft coupling, assembler, and shafts, sliding and rolling bearings, shaft coupling transmissions, axles and shafts, sliding and rolling bearings, shaft coupling, assembler, and shafts, sliding and rolling bearings, shaft coupling transmissions, axles and shafts, sliding and rolling bearings, shaft coupling transmissions, axles and shafts, sliding and rolling bearings, shaft coupling transmissions, axles and shafts, sliding and rolling bearings, shaft coupling transmissions, axles and shafts, sliding and rolling bearings, shaft coupling transmissions, axles and shafts, sliding and rolling bearings, shaft coupling transmissions, axles and shafts, sliding and rolling bearings, shaft coupli	ZK pipelines and their a  Z,ZK pys). Mechanical tradiconnecting bolts, obly units is also incompleted by the second control of the second control of the second control of the second control of the second control, operation of the second control, operation of the second control of the s	3 accessories 6 ansmissions clamped, dispensable 2 4 4 a. Instruction converters, ocused on 4 nd Energy. perational 4 construction, tic, speed
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2131512 Joints and joining e (belt, chain, fricti pressed, splined and 2133013  2133014 2133025 Design 2141006 Computers and mix set, machine coordigital input and coordigital	Machine Elements and Mechanisms I.  Belements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, ke ion, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded and key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple assems seminar work.  Engineering Design III.  Design of assembly unit (draft drawing, detail drawing, assembly drawing, technical report)  Engineering Design IV.  Design  In, design calculations and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft coupling, assembler, ANSY-C language. Software and hardware tools for application developing. Simulator, emulator, logical analyzer. Computput. Analogous signal discretization, methods and errors of D/A and A/D conversion. Standard analogous signal. Interrupt system. 8051/52 microcomputer family.  Electric Circuits and Electronics heory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of electronics. Principle and typical parameters of basic semiconductor components. Application in electronic circuits (rectifier, stabilized amplifier). Analogous and digital circuits. Principle of analogous and digital signal power and energy. Calculation, measurement, power factor. Magnetic circuit, materials, hysteresis loop. Electromagnet. Transferer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-torus machines, principle, parameters, operating conditions, construction, starting, speed-torque character Low-voltage distribution system.  Electrical Measurement and Diagnostics	ZK pipelines and their a  Z,ZK pys). Mechanical tradiconnecting bolts, ably units is also incompleted by the second controllers and clutches.  Z  Z  ings and clutches.  Z,ZK rs, microcontrollers buter interfaces. Controllers are for the second controllers.  Z,ZK energy. El. Power are, power control, opcessor.  Z,ZK ormer, principle, controllers controllers are for the second controllers.  Z,ZK ormer, principle, controllers are for the second controllers are for the second controllers.  Z,ZK ormer, principle, controllers are for the second controllers are for the second controllers.  Z,ZK ormer, principle, controllers are for the second control	3 accessories 6 ansmissions clamped, dispensable 2 4 4 . Instruction converters, ocused on 4 and Energy. perational 4 construction, tic, speed nstruments. 4

2146060	Indonesian Language Course for Exchange	Z	2
	Basic of Indonesian Language for Student Exchange Program to Indonesia	1	· · · · · · · · · · · · · · · · · · ·
2146061	Technical Indonesian - Course I. Second part of Indonesian Language for Student Exchange Program to Indonesia	Z	2
2152091	Departmental Project	KZ	2
2153005	Fundamentals of Energy Conversions	Z	1
2153003	Presentation of Project	Z	4
2181026	Momentum, Mass and Heat Transfer	Z,ZK	5
	ransport 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.		
2182019	Chemistry	KZ	3
	y from the point of view of mechanical and process engineering. Physical chemistry forms 2/3 of the course (structure and properties	l .	odynamics,
phase equilibrium	, chemical reactions, reaction engineering), the remaining 1/3 is devoted to organic chemistry (hydrocarbons, polymers) and bioche oriented upon the material properties measurement.	mistry. Laboratory	practice is
2182091	Project	KZ	2
	Absolvent se seznámí se základy oboru Procesní technika.		· 
2183091	Project Presentation  Preparation and presentation of a given project theme.	Z	4
2311101	Mechanics I.	Z,ZK	4
Mechanics I deals w	with the basic concepts of statics. There are described the methods of solution of equilibrium of particles and rigid bodies and their sy There are introduced the methods of description of position and motion of particles and rigid bodies.	stems with and wi	thout friction
2311102	Mechanics II.	Z,ZK	4
•	and of rigid bodies. Transformation matrix. Kinematics of concurrent movements. Motion: translation, rotation, general planar motion, son. Composition of mechanisms. Basic planar mechanisms. Analytical methods in kinematics of mechanisms - Trigonometric and vec in kinematics. Basic theory of gearing. Transmition mechanisms with geers. Strutting and seezing in mechanisms. Cable mechanisms.	tor method. Graph	
2321039	Materials Science II.	Z,ZK	4
Fundamentals of m	etallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and the		l processing
	technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of mater		
2322029	Materials Science I.	KZ	3
	ent state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, deformation of the control of the co	-	
	rials, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, in		
2361005	Instrumental Technology  This subject gives students a detail review of technology used for instrumentation production.	Z,ZK	4
2361097	Design of Instruments  Basics of instruments design.	Z,ZK	5
2362091	Project	KZ	2
2362502	Technical optics	KZ	3
The course gives a	thorough interpretation of the principle of image forming by planar and spherical surfaces under the laws of geometric optics. It also colour aberrations and basic visual instruments.	deals with monoc	hromatic and
2362503	Applied Optics	KZ	4
	The course introduces students to the functions of basic optical instruments and shows their applications.	1	ı
2363091	Project Presentation	Z	4
2363985	Bachelor Thesis	Z	5
2371047	Automatic Control	Z,ZK	5
	ers are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automatic		and practice
	ns, open versus closed loop control, design of controllers and frequency based analysis of control systems. The course also concentrate logic controllers. Some seminaries are arranged in laboratories where practical skills and control engineering methods are trained.	_	
	MATLAB software as a common platform of control engineers.		
2371126	Programmable Controller Applications	Z,ZK	4
_	ry of finite automaton - introduction, Petri nets -application for industrial processes control. Programmable Logic Controller (PLC), PLCs		-
model, common e	application areas. Function principles of PLC, configuration, HW structure of PLC, PLC software. Standard IEC 1131-3: software, prelements of programming languages, standard and derived functions and function blocks, structuring resource - sequential function of PLC and EDD Control and languages.	diagram (SFC), pr	ogramming
	ST and FBD. Control applications design -methodology. Software tools for PLC programming. Industrial processes visualization. Syston possibilities of PLCs. Industrial communication standards (Profibus, ASi). Laboratory exercises on technological models via PLCs: Siemens.		_
2371524	Means of Automatic Control	Z,ZK	5
_	es of means for automatic control according to the different criterions. Main features in each category. Air and hydraulic fluid as a med		
-	iptions in pneumatic and hydraulic diagrams. Pneumatic control systems design. Pneumatic actuators, valves, special pneumatic, eledimensioning, design, applications. Inteligent pneumatics as an integration of pneumatic, electronic and control components and system	-	
2274742	standard, with industrial buses communication, programmable. Pneumatic positioning systems.	7 71/	4
2371710	Computer Simulation Models	Z,ZK	4
	s a basic knowledge on formulation and computer implementation of dynamical system models. It starts from theoretical issues of L bribing the continuous and discrete linear systems respectively. A particular emphasis is given on the skills in describing the dynamic approach in both linear and non-linear systems.		
2372041	Computer Support for Study	KZ	3
	computer Support for Study ces students into creating technical and professional documents on computers or Web and into realizing technical computations with	I	-
gain practica	al skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating techn	ical-based WWW	page.

2372083	Measurement in Engineering	KZ	3
Overview of sens	sor principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and	verification of meas	surement
	instruments.		
2372091	Project	KZ	2
	An individual project from the branch of specialisation, which student will study on his/her magister level		
2372507	Informatic systems	KZ	4
Meanings of Inf	ormation. Information theory. Channel capacity. Coding theory. Data coding, markup languages, XML. Cryptography. OSI Reference I	√lodel. Transmissio	n media
(metallic, opti	cal, wireless). Data link layer. Network layer, communication protocols, TCP/IP suite. Digitization of analog signals. Quantum informat	ion. Genetic inform	nation.
2373091	Project presentation	Z	4
Diploma thesis or b	achelor work presentation. Student should study the presentation software possibilities and proposition of the department. Student sh	ould prepare the p	presentation
of actual version	of his diploma or bachelor work and present it in the face of the other student. The presentation will continue with discussion. Conse	quently, the work s	should be
	presented as a pdf file on a temporal web page.		
2373712	Project	Z	3
	Breaf introduction to the SmartPlant projection software. The project from the informatics in the second half of this subject	•	
2373985	Bachelor Thesis	Z	5
	Each student will solve his individual theme under guiding of his individual supervising department specialist. Result is his/her bache	elor thesis.	'
2381054	Management and Economics of the Enterprise	Z,ZK	4
The subject is inten	ded to teach the students of the Faculty of Mechanical Engineering the basic economic starting points necessary for technical reasonin	g and to help them	understand
the basic relations	hips between economic quantities costs - revenues, expenses - incomes and other basic economic terms. The goal is for the audience	ce to be able to cor	mmunicate
with economists in	n organizations. every product or service is valued at a selling price and therefore it is necessary to understand the simple costing of	products and servi	ices. Every
technician will enco	ounter reports and should understand the basic structure of financial statements. As a future manager, he will compile and approve th	e operating budget	t. In the field
•	hey will learn basic managerial functions and their content. Furthermore, they will learn how to use network analysis in project mana	•	on-making
ŗ	purposes, they will learn the applications of multi-criteria decision-making. The basics of marketing and strategic management will be	introduced.	
2383001	Fundamentals of Law	Z	2
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 provid	e a view into the C	zech Legal
Order, particular so	ources of law and system of law (branch of law), using tutorials, lectures, specialised literature and significant legal regulations. It is n	ecessary for stude	nts to know
•	ns, that will be regularly in touch with, especially during their professional career and to learn how to work with the collection of laws.		
leads students to kr	now some practical habits and processes while putting the law on, especially in domain of contracts and other important legal relation	ships and to make	them ready
	to prepare professional presentations and to understand basic structures between law and engineering		
2383009	Communication and Dealing with People	Z	2
Human communic	ation represents an irreplaceable phenomenon in human activity, as it is present in practically all of his activities. The same applies (	with specific modifi	ications) to
	the activities of managers. So you can't not communicate - you can only communicate badly, well and excellently.		
K331068	Technology I	Z,ZK	5
Foundry properties	of metals. Treatment. Pouring. Casting solidification. Moulding and core making. Thermal treatment. Plastic deformation. Division of form	ing processes. Ser	mi-products,
	heating-up. Cutting. Cold and hot forming. Welds. Weldability. Weldment testing. Thermal cutting. Brasing. Surface treatmen	t.	
K333038	Fundamentals of Technology I.	Z	3
Production proces	ses in engineering production. Technology of engineering production. Materials in engineering. Concepts of steel and cast iron, techr	ical metals. Produ	ction of pig
iron and steel. Cas	sting: modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming tech	inology. Hot and co	old forging.
Free and drop fo	rging. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of weld	ding. Fusion weldin	ıg: Flame
	welding and arc welding with coated electrodes. Thermal cutting.		
K341014	Technology II.	<i>7 7</i> K	5

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