## Study plan

## Name of study plan: 07 40 45 50 DSTR 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: 101

Elective courses credits: 137 Sum of credits in the plan: 238

Note on the plan: SP12DSTR-K MUSTR # SP12DSTR-TZP-K # SP12BSTR-TZP-K # první pokus

Name of the block: Compulsory courses in the program

Minimal number of credits of the block: 54

The role of the block: P

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:

2362502

Technical optics

colour aberrations and basic visual instruments.

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 Jakub Jura, Pavel Trnka, Oto Vrána Jakub Jura Jakub Jura (Gar.)	Z,ZK	4	2P+0C+2L	*	Р
2362502	Technical optics	KZ	3	2P+15C+05L	*	Р

2361097	Design of Instruments	Z,ZK	5
Basics of instrume	nts design.	'	
2371710	Computer Simulation Models	Z,ZK	4
The course provide	es a basic knowledge on formulation and computer implementation of dynamical system models. It starts from theoretical issues of	of Laplace and Z ti	ransform in thei
application to desc	ribing the continuous and discrete linear systems respectively. A particular emphasis is given on the skills in describing the dynar	mic processes in th	ne state space
approach in both li	near and non-linear systems.		
2373712	Project	Z	3
Breaf introduction	o 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 means for automatic control according to the different criterions. Main features in each category. Air and hydraulic fluid as a me	edium for informati	on transfer.
Symbols and desc	iptions in pneumatic and hydraulic diagrams. Pneumatic control systems design. Pneumatic actuators, valves, special pneumatic,	electropneumatic	devices. Contro
valves, categories,	dimensioning, design, applications. Inteligent pneumatics as an integration of pneumatic, electronic and control components and sy	stems. Valve island	ds and terminals
standard, with indu	strial buses communication, programmable. Pneumatic positioning systems.		
2371126	Programmable Controller Applications	Z,ZK	4
Logic control, Theo	ry of finite automaton - introduction, Petri nets -application for industrial processes control. Programmable Logic Controller (PLC), P	LCs in distributed	control systems
	explication areas. Function principles of DLC, configuration, HW structure of DLC, DLC activare, Standard IEC 1121.2; activare	program mand cor	mmunication
-	pplication areas. Function principles of PLC, configuration, HW structure of PLC, PLC software. Standard IEC 1131-3: software,		
type sof PLC and a	ements of programming languages, standard and derived functions and function blocks, structuring resource - sequential function		orogramming
type sof PLC and a model, common el		n diagram (SFC), p	
type sof PLC and a model, common el languages LD, IL,	ements of programming languages, standard and derived functions and function blocks, structuring resource - sequential function	n diagram (SFC), p Systems of PLCs, r	networking of

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

ΚZ

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

	of the courses of this group of Study Plan: Code=12BS*8P-IAT Name=13 2012 BSTR 8.sem	T	
2362503	Applied Optics	KZ	4
The course introduce	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	e transmission.	'
2372507	Informatic systems	KZ	4
Meanings of Informa	tion. Information theory. Channel capacity. Coding theory. Data coding, markup languages, XML. Cryptography. OSI Reference	Model. Transmissi	on media
(metallic, optical, wir	eless). Data link layer. Network layer, communication protocols, TCP/IP suite. Digitization of analog signals. Quantum information	on. Genetic informa	ation.
2141006	Embedded systems	Z,ZK	4
Computers and micro	ocomputers history. Block diagram of computer. Busses, processors, memories, input and output circuits. Single chip microcom	outers, microcontro	ollers. Instructio
set, machine code, a	ssembler, ANSY-C language. Software and hardware tools for application developing. Simulator, emulator, logical analyzer. Co	mputer interfaces.	Converters,
digital input and outp	ut. Analogous signal discretization, methods and errors of D/A and A/D conversion. Standard analogous signal. Interrupt syste	m. Practical labs a	re focused on
8051/52 microcompu	iter family.		
2361005	Instrumental Technology	Z,ZK	4
This subject gives st	udents a detail review of technology used for instrumentation production.	•	•

Code of the group: 12DSK1P-KMEN

Name of the group: 00 2012 D kmenové 1. semestr STR kombinované

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

Credits in the group: 0

Note on the group:

12B\*\*1P-KMEN #

6

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2182019	Chemistry Radek Šulc, Martin Dostál, Vojt ch B lohlav, Stanislav Solna, Jan Sko ilas Radek Šulc Radek Šulc (Gar.)	KZ	3	2P+1C	1	Р
2011021	Constructive Geometry Ivana Linkeová	Z,ZK	6	3P+2C	*	Р
2011056	Mathematics I Radka Keslerová, Marta Hlavová, Ji í Holman, Gejza Dohnal, Marta ertíková, Vladimír Hric, Nikola Pajerová, Petr Louda, Lukáš Hájek, Radka Keslerová Gejza Dohnal (Gar.)	Z,ZK	8	4P+4C	*	Р
2372041	Computer Support for Study Vladimír Hlavá	KZ	3	1P+1C	*	Р
K333038	Fundamentals of Technology I.	Z	3	8B	*	Р

### Characteristics of the courses of this group of Study Plan: Code=12DSK1P-KMEN Name=00 2012 D kmenové 1. semestr STR kombinované

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

2011021 Constructive Geometry Z,ZK
The subject is focused on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.

2011056 | Mathematics I | Z,ZK | 8

In the course, greater emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connections between concepts. Students will also get to know the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas: eigennumbers and eigenvectors of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.

2372041 Computer Support for Study

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

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, technology of engineering production. Materials in engineering. Concepts of steel and cast iron, technology. 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: 12DSK2P-KMEN

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

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

Credits in the group: 0

2021041

Note on the group: 12B\*\*2P-KMEN #

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

## Characteristics of the courses of this group of Study Plan: Code=12DSK2P-KMEN Name=00 2012 D kmenové 2. semestr STR kombinované

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

2011062 Matematika II. Z,ZK 8

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

2322029 Materials Science I. KZ 3
History and present state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, deformation, recrystallization and

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

Code of the group: 12DSK3P-KMEN

Physics L

Name of the group: 00 2012 D kmenové 3. semestr STR kombinované

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

Credits in the group: 0

Note on the group: 12B\*\*3P-KMEN #

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2021025	Physics II.	Z,ZK	4	1P+2L	3	Р

2011009	Mathematics III Radka Keslerová, Ji í Holman, Gejza Dohnal, Marta ertíková, Vladimír Hric, Jan Valášek, Lud k Beneš, Tomáš Bodnár, Tomáš Neustupa, Stanislav Kra mar Stanislav Kra mar (Gar.)	Z,ZK	5	2P+2C	*	Р
2311101	<b>Mechanics I.</b> Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Zbyn k Šika, <b>Zbyn k Šika</b> Zbyn k Šika (Gar.)	Z,ZK	4	2P+2C	*	Р
2321039	Materials Science II. Jana Sobotová, Eliška Gal íková, Ji í Cejp, Pavlína Hájková, Jan Kr il, Vladimír Mára, Lucie Pilsová, Ta ana Vacková, Jan Walter, Jana Sobotová Jana Sobotová (Gar.)	Z,ZK	4	2P+2L	*	Р
2133013	Engineering Design III. Jan Kanaval, Jan Hoidekr, František Lopot, David Skalický, Roman Uhlí Jan Kanaval Jan Kanaval (Gar.)	Z	2	0P+2C	Z	Р
2012035	Algorithmization and Programming Fundamentals Ji í Holman, Marta ertíková, Vladimír Hric, Lukáš Hájek, Jan Halama, Vladimír Prokop, Martin Hanek, Jan Karel, Josef Musil, Petr Svá ek Petr Svá ek (Gar.)		4	1P+2C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12DSK3P-KMEN Name=00 2012 D kmenové 3. semestr STR kombinované

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	of 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 system	n 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 lectures.
2011009	Mathematics III	Z,ZK	5
An introductory cou	urse in ordinary differential equation and infinite series.		
2311101	Mechanics I.	Z,ZK	4
Mechanics I deals	with the basic concepts of statics. There are described the methods of solution of equilibrium of particles and rigid bodies and the	eir systems with and	d without friction.
There are introduce	ed the methods of description of position and motion of particles and rigid bodies.		
2321039	Materials Science II.	Z,ZK	4
Fundamentals of m	netallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal	and thermo-mechan	nical processing
technical iron-carb	on alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materials.		
2133013	Engineering Design III.	Z	2
Design of assembly	y unit (draft drawing, detail drawing, assembly drawing, technical report)		
2012035	Algorithmization and Programming Fundamentals	KZ	4
Programming in Ma	ATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. N	latrices, vectors and	d operations.
Writting M-script. Ir	nput and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations.	Systems of linear ed	quations. Scripts
and functions. Stru	cture of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers	. Structures. Algorith	nmization of
simple programs: n	onimum, mean, norm, numerical integration, bisection method. Newton method, matrix operations. Direct methods for solution of	of systems of linear	equations

Code of the group: 12DSK4P-KMEN

Name of the group: 00 2012 D kmenové 4. semestr STR kombinované

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

Credits in the group: 0

Note on the group:

12B\*K4P-KMEN #

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2311102	Mechanics II. Pavel Bastl, Václav Bauma, Petr Beneš, Ivo Bukovský, Martin Ne as, Zden k Neusser, Jan Pelikán, Pavel Steinbauer, Zbyn k Šika, Václav Bauma Václav Bauma (Gar.)	Z,ZK	4	2P+2C	*	Р
2011049	Numerical Mathematics Radka Keslerová, Ji í Holman, Marta ertíková, Vladimír Hric, Petr Louda, Lukáš Hájek, Jan Valášek, Lud k Beneš, Tomáš Bodnár, Petr Svá ek Petr Svá ek (Gar.)	Z,ZK	4	2P+2C	4	Р
2133014	Engineering Design IV. František Lopot František Lopot (Gar.)	Z	2	0P+2C	L	Р
K331068	Technology I	Z,ZK	5	16B	*	Р

#### Characteristics of the courses of this group of Study Plan: Code=12DSK4P-KMEN Name=00 2012 D kmenové 4, semestr STR kombinované

Characteristics of the courses of this group of Study Plan: Code=12DSK4P-KMEN Name=00 2012 D kmenové 4. semestr STR kombinovane								
2311102	Mechanics II.	Z,ZK	4					
Kinematics of point and of rigid bodies. Transformation matrix. Kinematics of concurrent movements. Motion: translation, rotation, general planar motion, spherical motion, screw motion,								
general spatial motion. (	Composition of mechanisms. Basic planar mechanisms. Analytical methods in kinematics of mechanisms - Trigonometric and	vector method. Gr	aphical methods					
in kinematics. Basic the	ory of gearing. Transmition mechanisms with geers. Strutting and seezing in mechanisms. Cable mechanisms.							
2011049	Numerical Mathematics	Z,ZK	4					
Numerical solution of systems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerical solution of ordinary differential								
equations, initial and boundary value problems. Numerical solution of basic linear partial differential equations by finite difference method.								
2133014	Engineering Design IV.	Z	2					

K331068 Technology I

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

Code of the group: 12DSK5P-KMEN

Name of the group: 00 2012 D kmenové 5. semestr STR kombinované

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

Credits in the group: 0

Note on the group.

12B\*K5P-KMEN #

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members)  Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
2131512	Machine Elements and Mechanisms I. František Lopot	Z,ZK	6	3P+2C	*	Р
2141504	Electric Circuits and Electronics Stanislava Papežová, Jan Chyský, Jaroslav Novák, Lukáš Novák <b>Zuzana</b> Sedlecká Jan Chyský (Gar.)	Z,ZK	4	2P+06C+1.4L	*	Р
2372083	Measurement in Engineering Martin Novák, Vladimír Hlavá Martin Novák Martin Novák (Gar.)	KZ	3	1P+0C+2L	*	Р
K341014	Technology II.	Z,ZK	5	8KP+8KC	*	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=12DSK5P-KMEN Name=00 2012 D kmenové 5. semestr STR kombinované

Machine Elements and Mechanisms I. Joints and joining elements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, keys). Mechanical transmissions (belt, chain, friction, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloaded connecting bolts, clamped,

pressed, splined and key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple assembly units is also indispensable seminar work.

2141504	Electric Circuits and Electronics	Z,ZK	4

Introduction into theory of electrical circuits, analysis special types of electrical circuits as DC and AC. Transient states in circuits with accumulators of energy. El. Power and Energy. Introduction into 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.

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

K341014	Technology II.	Z,ZK	5
2153005	Fundamentals of Energy Conversions	Z	1
2383001	Fundamentals of Law	Z	2

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

Code of the group: 12DSK6P-KMEN

Name of the group: 00 2012 D kmenové 6. semestr STR kombinované

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

Credits in the group: 0

Note on the group:

12B\*\*6P-KMEN #

Tioto 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
2371047	Automatic Control Milan Hofreiter, R žena Petrová, Tomáš Vyhlídal, Jaromír Fišer Tomáš Vyhlídal Tomáš Vyhlídal (Gar.)	Z,ZK	5	3P+15C+05L	*	Р
2131026	Machine Elements and Mechanisms II Eliška Cézová, Jan Flek, Jan Kanaval, Karel Petr, Zden k ešpíro, Martin Dub, František Lopot, Ji í Houkal František Lopot František Lopot (Gar.)	ZK	3	3P+0C	*	Р
2141505	Electrical machines and drives Jan Chyský, Jaroslav Novák, Lukáš Novák <b>Jaroslav Novák</b> Jaroslav Novák (Gar.)	Z,ZK	4	2P+06C+1.4L	*	Р

2133025	<b>Design</b> František Lopot František Lopot František Lopot (Gar.)	Z	4	0P+4C	*	Р
2381054	Management and Economics of the Enterprise Theodor Beran, Št pánka Uli ná, Vladimír Brdek, Ladislav Vaniš, Petr Žemli ka Theodor Beran Theodor Beran (Gar.)	Z,ZK	4	2P+2C	*	Р
2181026	Momentum, Mass and Heat Transfer  Martin Dostál, Vojt ch B Iohlav, Stanislav Solna, Jan Sko ilas, Tomáš Jirout,  Adam Krupica, Ji í Moravec Tomáš Jirout Tomáš Jirout (Gar.)	Z,ZK	5	3P+1C	*	Р

Characteristics of the courses of this group of Study Plan: Code=12DSK6P-KMEN Name=00 2012 D kmenové 6. semestr STR kombinované

Automatic Control

Automatic Con

2131026 Machine Elements and Mechanisms II

Preliminary design, design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism, pipelines and their accessories and fittings.

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

3-phase transformer, operating conditions, rated (scheduled) values. Induction machine, principle, construction, operating conditions. Starting, speed-torque characteristic, speed control. Synchronous machines. DC-machines, principle, parameters, operating conditions, construction, starting, speed control, speed-torque characteristic. Low-voltage instruments. Low-voltage distribution system.

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

2381054 Management and Economics of the Enterprise Z,ZK 4

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

2181026 Momentum, Mass and Heat Transfer Z,ZK 5

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

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 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 | Z | 2

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

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

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

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

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

Credits in the group: 2

Note on the group:

Součástí tohoto bakalářského studijního programu je povinnost vykonat zkoušku z jednoho cizího jazyka. Student ji může vykonat kdykoliv v průběhu studia. Administrativně je předmět přiřazen ke studijnímu plánu čtvrtého semestru druhého ročníku, neboť se předpokládá, že si student během předcházejících

semestrů nejprve doplňuje v jazykových kurzech (volitelných předmětech) jazykové znalosti zejména v oblasti odborné terminologie

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 (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

SIKAIZIS									
2041061	English-Bachelor Exam	Z,ZK	2						
Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions,									
to write a summary, a r	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.								
2041063	French - Bachelor Exam /FME	Z,ZK	2						
Mapped to the Common	n European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diffi	culties, to take pai	rt in discussions,						
to write a summary, a r	eport and an essay, to read technical texts, to master grammar at advanced level.								
2041062	German - Bachelor Exam / FME	Z,ZK	2						
Mapped to the Common	n European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diffi	culties, to take pai	rt in discussions,						
to write a summary, a r	eport and an essay, to read technical texts, to master grammar at advanced level.								
2041065	Russian - Bachelor Exam / FME	Z,ZK	2						
Mapped to the Common	n European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater diffi	culties, to take pai	rt in discussions,						
to write a summary, a r	eport and an essay, to read technical texts, to master grammar at advanced level.								
2041064	Spanish - Bachelor Exam / FME	Z,ZK	2						
Mapped to the Common European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficulties, to take part in discussions,									
to write a summary, a r	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 fro	n 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	bsolvent 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. Studer	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 worl	k should be			
presented as a pdf file	presented as a pdf file on a temporal web page.					
2183091	Project Presentation	Z	4			
Preparation and preser	reparation 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	his individual theme under guiding of his individual supervising department specialist. Result is his/her bachelor thesis.		'

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

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

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

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

202A041	Physics I.	ZK	3					
Kinematics and dynamic	es of a particle motion. Principle of conservation of energy. System of particles, centre of mass. Rigid body. Continuum, elastic	properties of bod	lies. Oscillations,					
waves. Fluid mechanics	. Temperature and heat transfer. Kinetic theory of gases. Thermodynamics. Electric field, current, conductivity, resistance. Co	nductors, semicor	nductors,					
insulators. Magnetic field	d. Magnetic materials. Laboratories - accuracy of measurements, systematic and random errors, uncertainty of direct and inc	lirect measureme	nts, regression,					
measurements of 11 va	rious experiments related to the lectures.							
202A025	Physics II.A	ZK	2					
Faraday's law of electron	raday'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.

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 relations.

201A021	Constructive Geometry A	ZK	3
The subject is focused of	on geometric objects in the space - curves, surfaces and solids and their properties and mutual relations.		
201A056	Mathematics I.A	ZK	4
Introduction to linear alg	gebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable		
201A062	Mathematics II.A	ZK	4
Open and closed set, be	oundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Differe	ntial operators di	v (divergence)

and curl (rotation). Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, Fubini theorem. Transformation of integrals to polar, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Green's theorem. A potential vector field, independence of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector field through a surface. The Gauss-Ostrogradskij theorem.

201A009	Mathematics III.A	ZK	2
201A049	Numerical Mathematics A	ZK	2

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

Name of the group: 05 2012 doporu ené seminá e

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

Credits in the group: 0

Note on the group:

Pokud si chce student své dosud získané znalosti (například z matematiky, fyziky, cizích jazyků atd.) doplnit, může si zapsat některý z volitelných předmětů, které příslušné ústavy pro 1. semestr (zimní) vypisují. Doporučujeme zejména předměty uvedené v této skupině

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

and described of the common group of class, from contract the contract of the common contract of the common contract of the common contract of the common contract of the cont						
2026016	Physics - Seminar	Z	2			
The subject is mainly m	The subject is mainly meant for high-school students for repetition of high-school physics.					
2016007	Mathematics I Seminar	Z	2			

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

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

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

Credits in the group: 0 Note on the group:

Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their Code Completion Credits Scope Semester Role members) Tutors, authors and guarantors (gar.) **English Conversation** 2046155 7 2 0P+2C ۱/ Ilona Šimice, Michele Le Blanc Ilona Šimice Michele Le Blanc (Gar.) **English Conversation** Ζ 2 2046156 0P+2C L ٧ Ilona Šimice, Michele Le Blanc **English - Lower Intermediate** 2046071 Ζ 2 0P+2C L ٧ Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová

2046070	English - Lower Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová	Z	2	0P+2C	Z	V
2046074	Michaela Schusová Ilona Šimice (Gar.)  English - Advanced Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová, Michele Le Blanc Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046075	English - Advanced Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová, Michele Le Blanc Ilona Šimice Ilona Šimice (Gar.)	Z	2	0P+2C	L	V
2046072	English - Upper Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046073	English - Upper Intermediate Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Ilona Šimice Ilona Šimice (Gar.)	Z	2	0P+2C	L	V
2046068	English - Beginners Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Michaela Schusová Ilona Šimice (Gar.)	Z	2	0P+2C	Z	V
2046069	English - Beginners Ilona Šimice, Michaela Schusová, Hana Volejníková, Veronika Kratochvílová Ilona Šimice	Z	2	0P+2C	L	V
2046126	Czech Lower Intermediate  Jaroslava Kommová	Z	2	0P+2C	L	V
2046125	Czech Lower Intermediate		2	0P+2C	Z	V
2046118	Jaroslava Kommová  Czech -Advanced	Z	2	0P+2C	L	V
	Jaroslava Kommová  Czech -Advanced					
2046117	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 (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
2144062	Technical Indonesian - Course II.	Z,ZK	3	1P+2C	L	V
2046078	German - Lower Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046079	German - Lower Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046083	German - Advanced Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046082	German - Advanced Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V

2046081	German - Upper Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046080	German - Upper Intermediate Course Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046076	German - Beginners Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Michaela Schusová Petr Laurich (Gar.)	Z	2	0P+2C	Z	V
2046077	German - Beginners Michaela Schusová, Jaroslava Kommová, Eliška Vítková, Petr Laurich Eliška Vítková Jaroslava Kommová (Gar.)	Z	2	0P+2C	L	V
2046161	Presentations in English Michaela Schusová	Z	2	0P+2C	*	V
2046166	Presentations in Czech  Jaroslava Kommová	Z	2	0P+2C	*	٧
2046162	Presentations in German  Jaroslava Kommová, Eliška Vítková, Petr Laurich <b>Jaroslava Kommová</b> Jaroslava Kommová (Gar.)	Z	2	0P+2C	*	V
2046164	Presentations in Russian Dušana Jirovská	Z	2	0P+2C	*	V
2046163	Presentations in French language Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	*	V
2046165	Presentations in Spanish Eliška Vítková	Z	2	0P+2C	*	V
2046137	Russian - Lower Intermediate Course Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046138	Russian - Lower Intermediate Course Michaela Schusová, Hana Volejníková, Dušana Jirovská Dušana Jirovská	Z	2	0P+2C	L	V
2046141	Russian - Advanced Michaela Schusová, Hana Volejníková, Dušana Jirovská, Eliška Vítková Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046142	Russian - Advanced Michaela Schusová, Hana Volejníková, Dušana Jirovská <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 Michaela Schusová Michaela Schusová (Gar.)	Z	2	0P+2C	Z	V
2046099	Spanish - Lower Intermediate Michaela Schusová, Jaime Andrés Villagómez Eliška Vítková Jaime Andrés Villagómez (Gar.)	Z	2	0P+2C	L	V
2046098	Spanish - Lower Intermediate Michaela Schusová, Eliška Vítková, Jaime Andrés Villagómez Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046096	Spanish - Beginners Michaela Schusová, Eliška Vítková, Jaime Andrés Villagómez Eliška Vítková Eliška Vítková (Gar.)	Z	2	0P+2C	Z	V
2046097	Spanish - Beginners Michaela Schusová, Jaime Andrés Villagómez Jaime Andrés Villagómez Jaime Andrés Villagómez (Gar.)	Z	2	0P+2C	L	V

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

curzy a prezentace		
2046155 English Conversation	Z	2
Improving communicative skills in speaking on general topics and general technical topics.		
2046156 English Conversation	Z	2
Improving communicative skills in speaking on general topics and general technical topics.		
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	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. Improveme	ent of professiona	al language.
2046070 English - Lower Intermediate	Z	2
Aim: Understanding clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about then	n. Writing in a sir	nple way about
familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.		
2046074 English - Advanced	Z	2
The aim: comprehension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Writte	en 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	d of studies withou	out difficulties.
Grammar structures on advanced level. B1 - B2.		
2046075 English - Advanced	Z	2
Mapped to the Common European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in Er	nglish without gre	eat 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 comprehence	ension of popula	r-scientific and
scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.		

2046072	English - Upper Intermediate	Z	2
	anguage skills taking into consideration professional English and common professional terminology. Comprehension of stand	ard English speech a	and conversation
	day life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2 - B1.		_
2046073	English - Upper Intermediate	_   Z	2
	non European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional		
terminology. Comprei knowledge.	nension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on inte	amediate level. broad	dening gramma
2046068	English - Beginners	Z	2
	English - Deglithers y of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology	1	
2046069	English - Beginners	7	2
	ion European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Undersi	tanding and use of b	
	erminology (professional language).		
2046126	Czech Lower Intermediate	Z	2
Aim: Understanding of	learly 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 sin	nple way about
familiar topics. Readi	ng and comprehension of simple texts. Improvement of professional language.		
2046125	Czech Lower Intermediate	Z	2
	learly 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 sin	nple way about
<u> </u>	ng and comprehension of simple texts. Improvement of professional language.		
2046118	Czech -Advanced	Z	2
	f Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given i a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compreh	_	
	a discussion. Written and oral skins on advanced level. Ability to write a summary, a report, an essay. Reading and complete exts from student's field of studies without difficulties. Grammar structures on advanced level.	lension of popular-sc	denuiic and
2046117	Czech -Advanced	Z	2
	oken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation	-	_
	o write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and technica	=	3 1
2046127	Czech - Upper Intermediate	Z	2
Understanding stand	ard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. A	bility to describe exp	eriences and
events, briefly explair	one's opinions and plans. Reading and understanding general and technical texts.		
2046128	Czech - Upper Intermediate	Z	2
Mapped to the Comm	on European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration profession	nal Czech and comm	non professiona
	nension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on in	termediate level. Bro	adening the
knowledge technical			
2046119	Czech Language for Beginners I.	Z	2
	veryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (pro	ressional language)	-
2046120	Czech Language for Beginners II.	<u> </u>	2
* *	ion European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Underst erminology (professional language).	tanding and use of ba	asic expression
2046086	French - Lower Intermediate Course	7	2
	reficit - 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."		_
	comprehension of simple texts. Improvement of professional language.	Triming in a cimple in	ay azour arrind
2046087	French - Lower Intermediate Course	Z	2
	f Common European Framework of Reference: A2 Aim: Understanding clearly what is spoken about everyday situations wh		
his/her free time and	speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improveme	nt of professional lan	iguage.
2046091	French - Advanced	Z	2
Mapped to the level of	f Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in French on	topics familiar to the	student.
	native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading	and understanding t	texts concernin
	pular scientific and technical articles.		
2046090	French - Advanced	Z	2
	oken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participa s. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and		=xpressing
-		7	2
2046089 Manned to the level o	French - Upper Intermediate f Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a student:		2 ork at school
	talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and under		
2046088	French - Upper Intermediate	7	2
	ard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. A	. – .	_
<del>-</del>	one's opinions and plans. Reading and understanding general and technical texts.	,	
2046084	French - Beginners	Z	2
Jnderstanding 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 w	ay about familia
opics. Reading and o	comprehension of simple texts. Improvement of professional language.		
2046085	French - Beginners' Course	Z	2
	f Common European Framework of Reference: A1 Aim: Understanding clearly what is spoken about everyday situations wh		
	speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improveme		
his/her free time and		Z	2
his/her free time and 2146060	Indonesian Language Course for Exchange		
his/her free time and 2146060 Basic of Indonesian L	anguage for Student Exchange Program to Indonesia		
his/her free time and 2146060 Basic of Indonesian L 2146061	Language for Student Exchange Program to Indonesia  Technical Indonesian - Course I.	Z	2
his/her free time and 2146060 Basic of Indonesian L 2146061 Second part of Indon	anguage for Student Exchange Program to Indonesia	· ·	
his/her free time and 2146060 Basic of Indonesian L 2146061 Second part of Indon 2144062	anguage for Student Exchange Program to Indonesia  Technical Indonesian - Course I. esian Language for Student Exchange Program to Indonesia  Technical Indonesian - Course II.	Z,ZK	2
his/her free time and 2146060 Basic of Indonesian L 2146061 Second part of Indon 2144062 Basic of Indonesian L	anguage for Student Exchange Program to Indonesia    Technical Indonesian - Course I. esian Language for Student Exchange Program to Indonesia    Technical Indonesian - Course II. anguage for Student Exchange Program to Indonesia	Z,ZK	3
his/her free time and 2146060 Basic of Indonesian L 2146061 Second part of Indon 2144062 Basic of Indonesian L 2046078	anguage for Student Exchange Program to Indonesia  Technical Indonesian - Course I. esian Language for Student Exchange Program to Indonesia  Technical Indonesian - Course II.	Z,ZK	3

2046079 Mapped to the level of	German - Lower Intermediate Course		
Mapped to the level of		Z	2
or in his/her free time	Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations whic and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improveme		
2046083	German - Advanced Course	7	2
	Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in		<del>-</del>
and active participation	in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and compr	ehension of popula	r-scientific and
scientific articles or tex	ts from student's field of studies without difficulties. Grammar structures on advanced level.		
2046082	German - Advanced Course	Z	2
Comprehension of spo	ken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participat	ion 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 to	echnical articles.	
2046081	German - Upper Intermediate Course	Z	2
	Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students of		
_	alking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understand	anding general and	
2046080	German - Upper Intermediate Course 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 ever	2 prionces and
_	one's opinions and plans. Reading and understanding general and technical texts.	ity to describe expe	erierices ariu
2046076	German - Beginners	7	2
	eryday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (profes	. – .	۷
2046077	German - Beginners	7	2
	ommon European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding	and use of basic e	
	nology (professional language).		
2046161	Presentations in English	Z	2
Preparing students to	oresent 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	ting technical topics in German, possibly in cooperation with specialized departments.		
2046164	Presentations in Russian	Z	2
	ting technical topics in Russian, possibly in cooperation with specialized departments.		
2046163	Presentations in French language	Z	2
	ting technical topics in French, possibly in cooperation with specialized departments.		
2046165	Presentations in Spanish	Z	2
	ting technical topics in Spanish, possibly in cooperation with specialized departments.		
2046137	Russian - Lower Intermediate Course	Z 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 mprehension of simple texts. Improvement of professional language.	nung in a simple wa	ay about lamilla
topico. Itodaning and ot	imprononoion or omplo toxto. Improvement or protocolonarianguago.		
2046138	Russian - Lower Intermediate Course	7	2
2046138 Mapped to the level of	Russian - Lower Intermediate Course Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a str	Z udent meets at sch	2 ool or in his/he
Mapped to the level of	Russian - Lower Intermediate Course Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a straight about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of profe	udent meets at sch	· <del>-</del>
Mapped to the level of	Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a str	udent meets at sch	_
Mapped to the level of free time and speaking 2046141	Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a strabout them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of profe	udent meets at sch	ool or in his/he
Mapped to the level of free time and speaking 2046141 Comprehension of spo	Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a strabout them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of profe Russian - Advanced	udent meets at schessional language.  Z ion in discussions.	ool or in his/he
Mapped to the level of free time and speaking 2046141 Comprehension of spoopinions. Written skills 2046142	Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a strabout them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of profe Russian - Advanced ken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participat Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to Russian - Advanced	udent meets at schussional language.  Z ion in discussions. echnical articles.	ool or in his/he  2 Expressing
Mapped to the level of free time and speaking 2046141 Comprehension of spoopinions. Written skills 2046142 Mapped to the level of	Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a str about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of profe Russian - Advanced ken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participat Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to Russian - Advanced  Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on the student is spoken language.	udent meets at schussional language.  Z ion in discussions. echnical articles.  Z topics familiar to the	2 Expressing 2 e student.
Mapped to the level of free time and speaking 2046141 Comprehension of spo opinions. Written skills 2046142 Mapped to the level of Communication with n	Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a striabout them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of profe Russian - Advanced ken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participat Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to Russian - Advanced  Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on tative speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a	udent meets at schussional language.  Z ion in discussions. echnical articles.  Z topics familiar to the	2 Expressing 2 e student.
Mapped to the level of free time and speaking 2046141 Comprehension of spo opinions. Written skills 2046142 Mapped to the level of Communication with n currant issues and pop	Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a strabout them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of profe Russian - Advanced ken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participat Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to Russian - Advanced Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on tative speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a ular scientific and technical articles.	udent meets at schessional language.  Z ion in discussions. echnical articles.  Z topics familiar to the	2 Expressing  2 e student. exts concerning
Mapped to the level of free time and speaking 2046141 Comprehension of spo opinions. Written skills 2046142 Mapped to the level of Communication with n currant issues and por 2046140	Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a stit about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of profe Russian - Advanced ken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participat Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and to Russian - Advanced Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on the ative speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading a relative speakers, participation and technical articles.  Russian - Upper Intermediate	udent meets at schessional language.  Z ion in discussions. echnical articles.  Z topics familiar to the nd understanding t	2 Expressing  2 e student. exts concerning
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# List of courses of this pass:

Code	Name of the course	Completion	Credit
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 relative.	Z,ZK	6
2011049	Numerical Mathematics	Z,ZK	4
	rounterical Mathernatics of systems of linear equations, iterative methods. Numerical solution of nonlinear algebraic equations. Least squares method. Numerica		1
varrieriear solution	equations, initial and boundary value problems. Numerical solution of basic linear partial differential equations by finite difference		y dilloron
2011056	Mathematics I	Z,ZK	8
	ter emphasis is placed on the theoretical basis of the concepts discussed and on the derivation of basic relationships and connection	1	-
=	v the procedures for solving problems with parametric input. In addition, students will gain extended knowledge in some thematic areas:	=	
g	of a matrix, Taylor polynomial, integral as a limit function, integration of some special functions.		
2011062	Matematika II.	Z,ZK	8
	set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Different		ivergence
-	Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral,		-
	r, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Gree ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector Gauss-Ostrogradskij theorem.	•	
2012035	Algorithmization and Programming Fundamentals	KZ	4
	MATLAB and its programming language. MATLAB command line. Elementary commands, variable, assignment and expression. Matr	1	perations
Vritting M-script. Ir	nput and output. Condition and cycle. Algorithmization of simple problems in MATLAB. Graphical commands. Matrix operations. Syste	ems of linear equati	ions. Scri
	ructure of program. Variables, expressions, assignment, and input / output commands. switch. For cycle. Arrays and files. Pointers. S	_	
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 relations.	1	
201A049	Numerical Mathematics A	ZK	2
201A056	Mathematics I.A		
		l ZK	1 4
	I .	ZK	4
201A062 Open and closed	Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable  Mathematics II.A set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Different	ZK tial operators div (d	4 livergence
201A062 Open and closed and curl (rotation). F of integrals to pola	Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable  Mathematics II.A set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Different curvative implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, r, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Gree ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector	ZK tial operators div (d Fubini theorem. Tra n's theorem. A pote	4 livergence insformation
201A062 Open and closed and curl (rotation). F of integrals to pola field, independent	Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable  Mathematics II.A set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Different Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, r, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Gree ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector Gauss-Ostrogradskij theorem.	ZK tial operators div (d Fubini theorem. Tra n's theorem. A pote or field through a su	4 livergence insformati
201A062 Open and closed and curl (rotation). For of integrals to pola field, independence 2021025	Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable  Mathematics II.A set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Different function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, r, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Gree ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector Gauss-Ostrogradskij theorem.  Physics II.	ZK tial operators div (d Fubini theorem. Tra n's theorem. A pote or field through a su	4 livergence insformati ential vect urface. Th
201A062 Open and closed ind curl (rotation). For integrals to pola field, independent 2021025 Faraday's law of electors.	Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable  Mathematics II.A set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Different Function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, r, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Gree ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector Gauss-Ostrogradskij theorem.	ZK tial operators div (d Fubini theorem. Tra n's theorem. A pote or field through a su  Z,ZK ctromagnetic waves	4 livergence insformati ential vect urface. Th  4 s. Interacti
201A062 Open and closed and curl (rotation). For integrals to pola field, independent 2021025 Faraday's law of eleof radiation with more consumptions.	Introduction to linear algebra, analytic geometry of straight lines and planes in E3, calculus of functions of one variable  Mathematics II.A set, boundary in E^k. Real function of k-variables. Partial derivatives and differentiability. Gradient and directional derivative. Different function given implicitly. Local and global (= absolute) extremes of a function of more variables. Double integral, volume (=triple) integral, r, cylindrical and spherical coordinates. A simple smooth curve and line integral of a scalar and vector function. Circulation and Gree ce of a line integral on the path. Simple smooth surface and surface integral of a scalar function and a vector function. Flow of a vector Gauss-Ostrogradskij theorem.  Physics II. actromagnetic induction. Maxwell's equations, electromagnetic waves. Light, wave optics, geometrical optics. Quantum properties of electromagnetic induction.	ZK tial operators div (d Fubini theorem. Tra n's theorem. A pote or field through a su  Z,ZK ctromagnetic waves	4 ivergence insformati ential vect urface. Th  4 s. Interacti f elements
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0044000			
2041063	French - Bachelor Exam /FME	Z,ZK	2
Mapped to the Com	Imon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	ties, to take part in	discussions,
2041064	Spanish - Bachelor Exam / FME	Z,ZK	2
Mapped to the Com	Imon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficult to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.	ties, to take part in	discussions,
2041065	Russian - Bachelor Exam / FME	Z,ZK	2
	imon European Framework Level B2. The aim is to understand spoken language and lectures on technical topics without greater difficul		discussions,
2046068	to write a summary, a report and an essay, to read technical texts, to master grammar at advanced level.  English - Beginners	7	2
	abulary of everyday life in a written and spoken form. Understanding and use of basic expressions of general scientific terminology (p	. –	
2046069	English - Beginners	Z	2
Mapped to the Con	nmon European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding of general scientific terminology (professional language).	g and use of basic	expressions
2046070	English - Lower Intermediate	Z	2
Aim: Understandin	g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. familiar topics. Reading and comprehension of simple texts. Improvement of professional language. A1 - A2.	Writing in a simple	way about
2046071	English - Lower Intermediate	Z	2
	mmon European Framework of Reference Level A2 Aim: Understanding clearly spoken language about everyday situations which a		
or at his/her free 2046072	time and speaking about them. Writing in a simple way about familiar topics. reading and comprehension of simple texts. Improveme  English - Upper Intermediate	ent of professional I	anguage.
	trigitaring Opper Intermediate  d language skills taking into consideration professional English and common professional terminology. Comprehension of standard En	∣	_
	about topics of everyday life - at school, at work, during free time, on intermediate level. Broadening grammar knowledge. A2		
2046073	English - Upper Intermediate  mmon European Framework of Reference Level B1. The aim is to extend language skills taking into consideration professional Engli	Z	2 rofessional
1	rehension of standard English speech and conversation about topics of everyday life - at school, at work, during free time, on intermedi	=	
0040074	knowledge.		
2046074 The aim: compret	English - Advanced pension of spoken English as well as lectures given in English without great difficulties and active participation in a discussion. Writte	Z n and oral skills on	2 advanced
1	te a summary, a report, an essay. reading and comprehension of popular-scientific and scientific articles or texts from student's field		
2046075	Grammar structures on advanced level. B1 - B2.	7	2
	English - Advanced pmmon European Framework of Reference Level B1 - B2. The aim: comprehension of spoken English as well as lectures given in En	_	
and active particip	ation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. reading and comprehensive to the summary of the state of the	nsion of popular-so	cientific and
2046076	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  German - Beginners	7	2
Baoic 1000	abulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p	rofessional langua	ge)
2046077	German - Beginners	Z	2
2046077	German - Beginners el Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding an	Z	2
2046077	German - Beginners	Z	2
2046077 Mapped to the lev 2046078	German - Beginners el Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding an general scientific terminology (professional language).  German - Lower Intermediate Course g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them.	Z d use of basic exp	2 ressions of
2046077 Mapped to the lev 2046078 Aim: Understandin	German - Beginners el Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding an general scientific terminology (professional language).  German - Lower Intermediate Course g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	Z d use of basic exp Z Writing in a simple	2 ressions of 2 way about
2046077 Mapped to the lev  2046078 Aim: Understandin  2046079 Mapped to the leve	German - Beginners el Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding an general scientific terminology (professional language).  German - Lower Intermediate Course g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  German - Lower Intermediate Course I of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a	Z d use of basic exp Z Writing in a simple Z student meets eith	2 ressions of  2 e way about  2 ner at school
2046077 Mapped to the lev  2046078 Aim: Understandin  2046079 Mapped to the leve or in his/her free	German - Beginners el Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding an general scientific terminology (professional language).  German - Lower Intermediate Course g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  German - Lower Intermediate Course I of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement	Z d use of basic exp Z Writing in a simple Z student meets eith	2 ressions of  2 e way about  2 ler at school anguage.
2046077 Mapped to the lev  2046078 Aim: Understandin  2046079 Mapped to the leve or in his/her free 2046080	German - Beginners el Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding an general scientific terminology (professional language).  German - Lower Intermediate Course g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  German - Lower Intermediate Course I of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a stime and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement German - Upper Intermediate Course	Z d use of basic exp  Z Writing in a simple  Z student meets eith at of professional la	2 ressions of  2 e way about  2 ler at school anguage.  2
2046077 Mapped to the lev  2046078 Aim: Understandin  2046079 Mapped to the leve or in his/her free 2046080	German - Beginners el Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding an general scientific terminology (professional language).  German - Lower Intermediate Course g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  German - Lower Intermediate Course I of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement	Z d use of basic exp  Z Writing in a simple  Z student meets eith at of professional la	2 ressions of  2 e way about  2 ler at school anguage.  2
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2046077 Mapped to the level 2046078 Aim: Understandin 2046079 Mapped to the level or in his/her free 2046080 Understanding state 2046081 Mapped to the level during free time, ar 2046082 Comprehension or 2046080	German - Beginners el Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding an general scientific terminology (professional language).  German - Lower Intermediate Course g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  German - Lower Intermediate Course I of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement German - Upper Intermediate Course andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability events, briefly explain one so opinions and plans. Reading and understanding general and technical texts.  German - Upper Intermediate Course el of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students come talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding German - Advanced Course of spoken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participation	Z d use of basic exp  Z Writing in a simple  Z student meets either of professional la  Z to describe experi  Z nes across at working general and tectors  Z n in discussions. E	2 ressions of  2 e way about  2 ner at school anguage.  2 ences and  2 , at school, thnical texts.  2 xxpressing
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2046077 Mapped to the lev  2046078 Aim: Understandin  2046079 Mapped to the leve or in his/her free  2046080 Understanding st:  2046081 Mapped to the leve during free time, ar  2046082 Comprehension opinions. 1  2046083 Mapped to the leve and active particips:  2046084	German - Beginners el Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding an general scientific terminology (professional language).  German - Lower Intermediate Course g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  German - Lower Intermediate Course I of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a time and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement  German - Upper Intermediate Course andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability events, briefly explain one 's opinions and plans. Reading and understanding general and technical texts.  German - Upper Intermediate Course el of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar topics, that a students com dt talking about these topics. Ability to describe experiences and events, explain one 's opinions and plans. Reading and understanding German - Advanced Course  of spoken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participatio Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific at German - Advanced Course  of Common European Framework of Reference: B1-B2 The aim: comprehension of spoken German as well as lectures given in German in discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehe scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.  French - Begi	Z d use of basic exp  Z Writing in a simple  Z student meets either of professional la  Z to describe experi  Z nes across at working general and technical articl  Z erman without greansion of popular-so	2 ressions of  2 e way about  2 ler at school anguage.  2 ences and  2 , at school, chnical texts.  2 xpressing es.  2 at difficulties cientific and
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2046077 Mapped to the lev  2046078 Aim: Understandin  2046079 Mapped to the leve or in his/her free  2046080 Understanding st:  2046081 Mapped to the leve during free time, ar  2046082 Comprehension opinions. V  2046083 Mapped to the leve and active participe:  2046084 Understanding clea	German - Beginners el Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding an general scientific terminology (professional language).  German - Lower Intermediate Course g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  German - Lower Intermediate Course I of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a stime and speaking about them. Writing in a simple way about familiar topics. reading and comprehesion of simple texts. Improvement  German - Upper Intermediate Course andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  German - Upper Intermediate Course el of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students come dia talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding standard speech about familiar topics, that a students come dia talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding standard speech about familiar topics, that a students come dia talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding standard speech about familiar topics, that a students come dia talking about these topics. Reading and understanding texts concerning currant issues and popular scientific a German - Advanced Course  of spoken language as well as lectures in German on topics familiar to the student. Communication with native speakers	Z d use of basic exp  Z Writing in a simple  Z student meets eith nt of professional la  Z to describe experi  Z nes across at work ng general and tec  Z n in discussions. E and technical articl  Z erman without greansion of popular-so	2 ressions of  2 e way about  2 ler at school anguage.  2 ences and  2 , at school, chnical texts.  2 expressing es.  2 at difficulties cientific and  2 bout familiar  2 school or in aguage.
2046077 Mapped to the lev  2046078 Aim: Understandin  2046079 Mapped to the leve or in his/her free  2046080 Understanding sta  2046081 Mapped to the leve during free time, ar  2046082 Comprehension opinions. V  2046083 Mapped to the leve and active participate  2046084 Understanding clear  2046085 Mapped to the leve his/her free time  2046086	German - Beginners el Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding an general scientific terminology (professional language).  German - Lower Intermediate Course g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  German - Lower Intermediate Course I of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a stime and speaking about them. Writing in a simple way about familiar topics, reading and comprehesion of simple texts. Improvement German - Upper Intermediate Course andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  German - Upper Intermediate Course el of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students come talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding standard speech about familiar topics, that a students come talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding standard speech about familiar topics, that a students come talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding topics, speakers, participation of spoken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participation of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken German as well as lectures given in Gration in a discussion. Written and oral skill	Z d use of basic exp  Z Writing in a simple  Z student meets eith nt of professional la  Z to describe experi  Z nes across at work ng general and tec  Z n in discussions. E and technical articl  Z erman without greansion of popular-so g in a simple way al  Z student meets at s of professional lar  Z	2 ressions of  2 e way about  2 ler at school anguage.  2 ences and  2 , at school, chnical texts.  2 expressing es.  2 at difficulties cientific and  2 bout familiar  2 school or in nguage.  2 2
2046077 Mapped to the lev  2046078 Aim: Understandin  2046079 Mapped to the leve or in his/her free  2046080 Understanding st:  2046081 Mapped to the leve during free time, ar  2046082 Comprehension opinions. V  2046083 Mapped to the leve and active participe:  2046084 Understanding clear  2046085 Mapped to the leve his/her free tim  2046086 Understanding clear	German - Beginners el Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding an general scientific terminology (professional language).  German - Lower Intermediate Course g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  German - Lower Intermediate Course I of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a student meets at work, at school, during free time, and talking about these topics. Ability events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  German - Upper Intermediate Course and advanced Framework of Reference: A2 - B1 Understanding standard speech about familiar topics, that a students con at talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding seneral and technical texts.  German - Advanced Course el of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar topics, that a students con at talking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding German - Advanced Course  el of spoken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participation of spoken language as well as lectures given in German - Advanced Course  el of Common European Framework of Reference: B1 - B2 The aim: comprehension of spoken German as well as lectures given in German - Advanced Course  el of Common European Framework of Reference: B1 - B2 The aim: comprehension of spoken German as well as lectures given in German in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an	Z d use of basic exp  Z Writing in a simple  Z student meets eith nt of professional la  Z to describe experi  Z nes across at work ng general and tec  Z n in discussions. E and technical articl  Z erman without greansion of popular-so g in a simple way al  Z student meets at s of professional lar  Z	2 ressions of  2 ressions  2 responsible to the second of the secon
2046077 Mapped to the lev  2046078 Aim: Understandin  2046079 Mapped to the leve or in his/her free  2046080 Understanding st:  2046081 Mapped to the leve during free time, ar  2046082 Comprehension opinions. V  2046083 Mapped to the leve and active participe:  2046084 Understanding clear  2046085 Mapped to the leve his/her free tim  2046086 Understanding clear  2046086	German - Beginners el Common European Framework of Reference A1 Basic vocabulary of everyday life in a written and spoken form. Understanding an general scientific terminology (professional language).  German - Lower Intermediate Course g clearly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. familiar topics. Reading and comprehension of simple texts. Improvement of professional language.  German - Lower Intermediate Course I of Common European Framework of Reference A2 Aim: Understanding clearly spoken language about everyday situations which a student meets at work, at school, during free time, and talking about these topics. Ability events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  German - Upper Intermediate Course andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.  German - Upper Intermediate Course el of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students com dtalking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding for sopinions and plans. Reading and understanding standard speech about familiar topics, that a students com dtalking about these topics. Ability to describe experiences and events, explain one's opinions and plans. Reading and understanding fexts concerning currant issues and popular scientific and comprehension of spoken German as well as lectures given in Greman - Advanced Course of Spoken language as well as lectures in German on topics familiar to the student. Communication with native speakers, participation in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay, Reading and comprehen	Z d use of basic exp  Z Writing in a simple  Z student meets eith nt of professional la  Z to describe experi  Z nes across at work ng general and tec  Z n in discussions. E and technical articl  Z erman without greansion of popular-so a in a simple way al  Z student meets at s of professional lar  Z g in a simple way al	2 ressions of  2 e way about  2 er at school anguage.  2 ences and  2 at school, chnical texts.  2 expressing es.  2 at difficulties cientific and  2 bout familiar  2 cchool or in riguage.  2 bout familiar  2 bout familiar

2046088 Understanding sta	French - Upper Intermediate  andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	Z to describe experie	2 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 leve	el of Common European Framework of Reference:A2 - B1 Understanding standard speech about familiar topics, that a students com	es 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 tech	nnical texts.
2046090	French - Advanced	7	2
		ı <del>-</del> 1	
	of spoken language as well as lectures in French on topics familiar to the student. Communication with native speakers, participatior		
opinions. V	Written skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific a	and technical article	es.
2046091	French - Advanced	Z	2
Mapped to the le	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	
* *	h native speakers, participation in discussions. Expressing opinions. Written skills. Ability to write an essay or a report. Reading and u		
Communication with		nucrotaliding texto	concerning
	currant issues and popular scientific and technical articles.		
2046096	Spanish - Beginners	Z	2
Aim:Understanding	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	wav about
`	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.	0 1	, I
0040007		_	
2046097	Spanish - Beginners	Z	2
Mapped to the Co	ommon European Framework of Reference Level A1. Aim: Understanding clearly what is spoken about everyday situations which a s	tudent meets at sc	hool 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 lan	guage.
2046098	Spanish - Lower Intermediate	7	2
	·	, <u> </u>	_
Understanding clea	urly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	, in a simple way ab	out familiar
	topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046099	Spanish - Lower Intermediate	Z	2
	of Common European Framework of Reference A2 Understanding clearly what is spoken about everyday situations which a studer	it meets at school c	or in his/her
	nd speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of p		
2046117	Czech -Advanced	Z	2
Comprehension of s	spoken language as well as lectures in Czech on topics familiar to the student. Communication with native speakers, participation in dis	cussions. Expressir	ng opinions.
Writte	en skills. Ability to write an essay or a report. Reading and understanding texts concerning currant issues and popular scientific and t	echnical articles.	
		7	
2046118	Czech -Advanced		2
Mapped to the level	l of Common European Framework of Reference: B1- B2 The aim: comprehension of spoken Czech as well as lectures given in Czec	th without great diff	iculties and
active participation	on in a discussion. Written and oral skills on advanced level. Ability to write a summary, a report, an essay. Reading and comprehens	ion of popular-scier	ntific and
	scientific articles or texts from student's field of studies without difficulties. Grammar structures on advanced level.		
2046119	Czech Language for Beginners I.	Z	2
1		. – .	
	abulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p		
2046120	Czech Language for Beginners II.	Z	2
Mapped to the Com	mon European Framework of Reference Level A1 Aim: Basic vocabulary of everyday life in a written and spoken form. Understanding	and use of basic e	expressions
	of general scientific terminology (professional language).	•	.
2040425		7	
2046125	Czech Lower Intermediate	Z	2
Aim: Understanding	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.		
2046126	Czech Lower Intermediate	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.		
Airi. Oriderstariding		writing in a simple	way about
	familiar topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046127	Czech - Upper Intermediate	Z	2
Understanding sta	andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	to describe experie	ences and
- · · · · · · · · · · · · · · · · · · ·	events, briefly explain one so opinions and plans. Reading and understanding general and technical texts.		
2242422			
2046128	Czech - Upper Intermediate	Z	2
Mapped to the Com	nmon European Framework of Reference Level A2-B1. The aim is to extend language skills taking into consideration professional Cz	ech and common p	rofessional
terminology. Com	prehension of standard Czech speech and conversation about topics of everyday life - at school, at work, during free time, on interm	ediate level. Broad	ening the
	knowledge technical language.		
2046135	Russian - Beginners	Z	2
1	9		
Basic voca	bulary of everyday life in a spoken and written form. Understanding and use of basic expressions of general scientific terminology (p	roressional languaç	ge)
2046136	Russian - Beginners	Z	2
1	el of Common European Framework of Reference: A1 Basic vocabulary of everyday life in a spoken and written form. Understanding	and use of basic e	
.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	of general scientific terminology (professional language)		
0040407			
2046137	Russian - Lower Intermediate Course	Z	2
Understanding clea	irly what is spoken about everyday situations which a student meets at school or in his/her free time and speaking about them. Writing	in a simple way ab	out familiar
	topics. Reading and comprehension of simple texts. Improvement of professional language.		
2046138	Russian - Lower Intermediate Course	Z	2
		_	
	l of Common European Framework of Reference: A2 Understanding clearly what is spoken about everyday situations which a studen		
tree time ar	nd speaking about them. Writing in a simple way about familiar topics. Reading and comprehension of simple texts. Improvement of p		
2046139	Russian - Upper Intermediate	Z	2
1	andard speech about familiar matters that a student meets at work, at school, during free time, and talking about these topics. Ability	to describe experie	
	events, briefly explain one's opinions and plans. Reading and understanding general and technical texts.		
00.12.1.2			
2046140	Russian - Upper Intermediate	Z	2
Mapped to the leve	el of Common European Framework of Reference: A2 - B1 Understanding standard speech about familiar matters that a student me	ets at work, at scho	ool, during
free time, and talking	ng about these topics. Ability to describe experiences and events, briefly explain one's opinions and plans. Reading and understandi	ng general and tech	nnical texts.
2046141	Russian - Advanced	Z	2
		_	
Comprehension of	of spoken language as well as lectures in Russian on topics familiar to the student. Communication with native speakers, participation		
oniniona V	Writton chills. Ability to write an essay or a report. Peading and understanding toyts concerning current issues and popular scientific of	and tochnical article	)C

2046142 Mapped to the le			
Mapped to the le	Russian - Advanced	Z	2
	evel of Common European Framework of reference: B1 - B2 Comprehension of spoken language as well as lectures in Russian on to		
Communication wit	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.	inderstanding texts	concerning
2046155	English Conversation	Z	2
2010100	Improving communicative skills in speaking on general topics and general technical topics.	_	_
2046156	English Conversation	Z	2
	Improving communicative skills in speaking on general topics and general technical topics.	1	ı
2046161	Presentations in English	Z	2
	Preparing students to present in English on technical topics, with a possible co-operation with specialized departments.		
2046162	Presentations in German	Z	2
	Preparation for presenting technical topics in German, possibly in cooperation with specialized departments.		ı
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	Z	2
2046165	Preparation for presenting technical topics in Russian, possibly in cooperation with specialized departments.	Z	2
2040100	Presentations in Spanish Preparation for presenting technical topics in Spanish, possibly in cooperation with specialized departments.		2
2046166	Presentations in Czech	Z	2
2040100	Preparing students to give presentations in English on technical topics, with a possible co-operation with specialized departm	_	
2131002	Engineering Design II	Z,ZK	4
	PS (Geometrical Products Specification). Students will get critical knowledge about ISO system of limits and fits, tolerancing, surface		
	ps, tolerancing of angles and cones, tolerancing of threads. Integral part of course is a project where students apply and practice the		
2131026	Machine Elements and Mechanisms II	ZK	3
Preliminary design	design calculations and aplication of axles and shafts, sliding and rolling bearings, shaft connections, elements of crank mechanism,	pipelines and their	accessories
	and fittings.		ı
2131512	Machine Elements and Mechanisms I.	Z,ZK	6
· -	elements (screwed, clamped, splined, welded, riveted, soldered and adhesive joints; joints with use of feathers, pins, tenons, cotters, ke		
• •	on, gear drives). Seminars are devoted to practical individual solution of simple design projects - tasks with motion screws, preloader	•	•
presseu, spiirieu ai	nd key joints between shafts and hubs and tasks with welded and riveted joints. Sketching of machine elements and their simple asser seminar work.	libly utilis is also in	uisperisable
2133013	Engineering Design III.	Z	2
2100010	Design of assembly unit (draft drawing, detail drawing, assembly drawing, technical report)	_	_
2133014	Engineering Design IV.	Z	2
2133025	Design	Z	4
	n, design calculations and their aplications in case of geared transmissions, axles and shafts, sliding and rolling bearings, shaft coupl	ings and alutahas	l .
		ings and clutches.	
2141006	Embedded systems	Z,ZK	4
		Z,ZK	
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2182091	Project	KZ	2
0400004	Absolvent se seznámí se základy oboru Procesní technika.	<b>-</b>	4
2183091	Project Presentation  Preparation and presentation of a given project theme.	Z	4
2311101	Mechanics I.	Z,ZK	4
Mechanics I deals	with the basic concepts of statics. There are described the methods of solution of equilibrium of particles and rigid bodies and their sys	stems with and with	nout friction.
2311102	There are introduced the methods of description of position and motion of particles and rigid bodies.  Mechanics II.	Z,ZK	4
	INECTIALITIES 11. and of rigid bodies. Transformation matrix. Kinematics of concurrent movements. Motion: translation, rotation, general planar motion, s		-
· ·	tion. Composition of mechanisms. Basic planar mechanisms. Analytical methods in kinematics of mechanisms - Trigonometric and vectors.	•	
	in kinematics. Basic theory of gearing. Transmition mechanisms with geers. Strutting and seezing in mechanisms. Cable mechanisms		
2321039	Materials Science II.	Z,ZK	4
Fundamentals of n	netallurgy, iron-carbon alloys and influence of other elements, phase transformations, thermal, combined chemical and thermal and the technical iron-carbon alloys, non-ferrous metals and their alloys, plastics, structural ceramics, composites, selection of materi		processing,
2322029	Materials Science I.	KZ	3
	ent state of materials engineering, overview of technical materials, internal structure of metals, crystal lattices and their defects, defor		
	erials, structure and properties of materials and their testing, fundamentals of thermodynamics, phases and phase transformations, in		
2361005	Instrumental Technology  This subject gives students a detail review of technology used for instrumentation production.	Z,ZK	4
2361097	Design of Instruments	Z,ZK	5
	Basics of instruments design.		
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 monoch	romatic and
2362503	Applied Optics	KZ	4
2302303	The course introduces students to the functions of basic optical instruments and shows their applications.	1\2	7
2363091	Project Presentation	Z	4
2363985	Bachelor Thesis	Z	5
2371047	Automatic Control	Z,ZK	5
Automatic control	lers are important part of many industrial processes. The goal of this course is to introduce students into basic knowledge of automat	ic control theory ar	nd practice
like transfer functio	ns, open versus closed loop control, design of controllers and frequency based analysis of control systems. The course also concentra	tes on logic control	and control
via programmab	le logic controllers. Some seminaries are arranged in laboratories where practical skills and control engineering methods are trained.	Students begin to	work with
0074400	MATLAB software as a common platform of control engineers.	7.71/	
2371126	Programmable Controller Applications  ry of finite automaton - introduction, Petri nets -application for industrial processes control. Programmable Logic Controller (PLC), PLCs	Z,ZK	4
_	d application areas. Function principles of PLC, configuration, HW structure of PLC, PLC software. Standard IEC 1131-3: software, pr		-
	elements of programming languages, standard and derived functions and function blocks, structuring resource - sequential function c	-	
languages LD, IL	, ST and FBD. Control applications design -methodology. Software tools for PLC programming. Industrial processes visualization. Sys	stems of PLCs, net	working of
PLCs, communicat	ion possibilities of PLCs. Industrial communication standards (Profibus, ASi). Laboratory exercises on technological models via PLCs:T	eco, Festo, Schnei	der Electric,
0074504	Siemens.	7.71/	
2371524	Means of Automatic Control es of means for automatic control according to the different criterions. Main features in each category. Air and hydraulic fluid as a med	Z,ZK	5
	es of means for automatic control according to the different chieffons. Main features in each category. All and hydraulic fluid as a med riptions in pneumatic and hydraulic diagrams. Pneumatic control systems design. Pneumatic actuators, valves, special pneumatic, elec		
	dimensioning, design, applications. Inteligent pneumatics as an integration of pneumatic, electronic and control components and system		
, , ,	standard, with industrial buses communication, programmable. Pneumatic positioning systems.		,
2371710	Computer Simulation Models	Z,ZK	4
1	es a basic knowledge on formulation and computer implementation of dynamical system models. It starts from theoretical issues of La	-	
application to des	cribing 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.	processes in the s	tate space
2372041	Computer Support for Study	KZ	3
The course introdu	ces students into creating technical and professional documents on computers or Web and into realizing technical computations with t		
gain practic	al skills by creating an essay in a text editor, by realizing technical computations with a spreadsheet calculator, and by creating technical	ical-based WWW p	age.
2372083	Measurement in Engineering	KZ	3
Overview of sen	sor principles for measurement of non-electrical variables (temperature, position, force, speed, acceleration, torque). Calibration and	verification of mea	surement
2372091	instruments.  Project	KZ	2
2372091	An individual project from the branch of specialisation, which student will study on his/her magister level	1\2	2
2372507	Informatic systems	KZ	4
	formation. Information theory. Channel capacity. Coding theory. Data coding, markup languages, XML. Cryptography. OSI Reference I		
(metallic, opt	ical, wireless). Data link layer. Network layer, communication protocols, TCP/IP suite. Digitization of analog signals. Quantum informat	tion. Genetic inform	ation.
2373091	Project presentation	Z	4
I -	pachelor work presentation. Student should study the presentation software possibilities and proposition of the department. Student sl		
or actual versior	of his diploma or bachelor work and present it in the face of the other student. The presentation will continue with discussion. Conse presented as a pdf file on a temporal web page.	quently, the work s	nould be
2373712	Project	Z	3
23/3/12	Breaf introduction to the SmartPlant projection software. The project from the informatics in the second half of this subject	1	J
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 inter	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	ships between economic quantities costs - revenues, expenses - incomes and other basic economic terms. The goal is for the audien	ce to be able to co	mmunicate
with economists i	n organizations. every product or service is valued at a selling price and therefore it is necessary to understand the simple costing of	products and serv	ices. Every
technician will ence	ounter reports and should understand the basic structure of financial statements. As a future manager, he will compile and approve th	e operating budge	t. In the field
of management,	they will learn basic managerial functions and their content. Furthermore, they will learn how to use network analysis in project mana	gement. For decisi	on-making
	ourposes, 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 i	n legal system is a necessary part of professional equipment of each expert with university degree. The aim of this course is to provid	le a view into the C	zech Legal
Order, particular s	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
our legal institution	ons, 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 k	now some practical habits and processes while putting the law on, especially in domain of contracts and other important legal relation	ships and to make	them ready
	to prepare professional presentations and to understand basic structures between law and engineering		
2383009	Communication and Dealing with People	Z	2
Human communi	ation represents an irreplaceable phenomenon in human activity, as it is present in practically all of his activities. The same applies (	, with specific modif	cations) 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	ning processes. Se	ni-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	nical metals. Produ	ction of pig
iron and steel. Ca	sting: modeling devices, molding materials, molding and castings. Foundry alloys. Overview of basic casting technology. Forming tech	nnology. Hot and co	old forging.
Free and drop for	orging. Rolling. Production of pipes. Bulk and sheet metal forming. Welding technology. The characteristics of the various types of weld	ding. Fusion weldir	ng: Flame
	welding and arc welding with coated electrodes. Thermal cutting.		
K341014	Technology II.	Z,ZK	5

For updated information see <a href="http://bilakniha.cvut.cz/en/FF.html">http://bilakniha.cvut.cz/en/FF.html</a> Generated: day 2025-06-13, time 15:29.