Study plan

Name of study plan: Jaderná chemie

Faculty/Institute/Others:
Department:
Branch of study guaranteed by the department: Welcome page
Garantor of the study branch:
Program of study: Nuclear Chemistry
Type of study: Bachelor full-time
Required credits: 0
Elective courses credits: 180
Sum of credits in the plan: 180
Note on the plan:

Name of the block: Compulsory courses in the program Minimal number of credits of the block: 0 The role of the block: P

Code of the group: BSPJCH1 Name of the group: BS P_JCHB 1st year

Requirement credits in the group:

Requirement courses in the group: In this group you have to complete at least 15 courses

Credits in the group: 0

Note on the group: Vykonání zkoušky 15ANCH1 je podmíněno úspěšným absolvováním předmětů 15LABT.Vykonání zkoušky 15ANCH2 je podmíněno úspěšným absolvováním předmětů 15ANCH1 a 15ANP.Vstup do praktika je podmíněn úspěšným absolvováním předmětu 15LABT.

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
15ANCH1	Michaela Fridrichová, Václav Tyrpekl, Jan Kotek Václav Tyrpekl Jan Kotek (Gar.)	Z,ZK	5	3+2	Z	Ρ
15ANCH2	Inorganic Chemistry 2 Michaela Fridrichová, Václav Tyrpekl, Jan Kotek, Petr Št pni ka Václav Tyrpekl Jan Kotek (Gar.)	Z,ZK	5	3+2	L	Ρ
15ANP	Practical Training in Inorganic Chemistry Václav Tyrpekl, Vojt ch Kubí ek Václav Tyrpekl Václav Tyrpekl (Gar.)	Z	4	9 dní	L	Ρ
02ELMA	Electricity and Magnetism Iskender Yalcinkaya, Josef Schmidt, Ji í Hrivnák, Goce Chadzitaskos, Jan Vysoký Jan Vysoký Josef Schmidt (Gar.)	Z,ZK	6	4+2	L	Ρ
15LABT	Practical Training in Laboratory Technique Michaela Fridrichová, Michaela Fridrichová Michaela Fridrichová Michaela Fridrichová (Gar.)	Z	3	0+4	Z	Ρ
01MATZ1	Mathematics, Examination 1 Radek Fu ík Radek Fu ík Radek Fu ík (Gar.)	ZK	2	-	Z	Ρ
01MATZ2	Mathematics, Examination 2 Radek Fu ík, Mat j Tušek Mat j Tušek Radek Fu ík (Gar.)	ZK	2	-	L	Ρ
01MAT1	Mathematics 1 Radek Fu ík Radek Fu ík Radek Fu ík (Gar.)	Z	4	3P+3C	Z	Ρ
01MAT2	Mathematics 2 Radek Fu ík Radek Fu ík Radek Fu ík (Gar.)	Z	4	3P+3C	L	Ρ
02MECH	Mechanics David B e Antonín Hoskovec David B e (Gar.)	Z	4	4+2	Z	Ρ
02MECHZ	Mechanics - Examination Iskender Yalcinkaya, Goce Chadzitaskos, Stanislav Skoupý, Petr Novotný, David B e , Filip Petrásek, Antonín Hoskovec Antonín Hoskovec David B e (Gar.)	ZK	2	-	Z	Ρ
15OCH	General Chemistry Petr Distler, Ond ej Holas Petr Distler Petr Distler (Gar.)	Z,ZK	6	5+2	Z	Ρ
15ORCA1	Organic chemistry 1 Michal Sakmár, Ján Kozempel, Stanislav Smr ek, Martin Vlk Stanislav Smr ek Ján Kozempel (Gar.)	Z	2	2P+2C	L	Ρ
00PT	Preparatory Week Petr Ambrož, Milan Krbálek Petr Ambrož Petr Ambrož (Gar.)	Z	2	týden	Z	Ρ

15TOXA	Toxicology Ján Kozempel, Martin Vlk Martin Vlk Ján Kozempel (Gar.)	ZK	2	2P	L	Р
Characteristics of	f the courses of this group of Study Plan: Code=BSPJCH1 Name=	BS P JCHB	1st vear	•		
15ANCH1				Z	.ZK	5
15ANCH2	Inorganic Chemistry 2			7	7 7K	5
The first part of course	is devoted to systematical chemistry of elements. The properties of representative element	ts transition elem	ents and che	emistry of co	ordination c	compounds are
characterised. Selected	d chapters in the second part of course deal with catalysis, organometallic compounds and ch	hemistry of solid s	tate. The role	of metal ior	ns in biologic	cal environment
is discussed at the end	l of course.					
15ANP	Practical Training in Inorganic Chemistry				7	4
Basic practical course	dealing with synthesis and characterization of inorganic compounds. Students get practical	l training in synthe	eses of inora	l anic compol	unds by acic	d- base and
oxidation-reduction rea	actions, complex formation reactions and reactions in melt.					
02FLMA	Electricity and Magnetism			7	7 7 K	6
Electric charge Coulor	mb's law electrostatic field Gauss' law Electric dipole polarization Conductors and dielect	trics Electric curre	ent and circu	its conducti	vity Basics	of the relativity
theory. Electrodynamic	forces, magnetic field. Magnetic dipole, magnetics, Electromagnetic induction, RLC circuits	s. Electromagnetic	c waves. Max	well equation	ons.	or the relativity
151 ART	Practical Training in Laboratory Technique		,		7	3
This course covers bas	sic laboratory training and is designed for students of "Chemistry in Science" "Teaching of (Chemistry" and "F	Bioloav" The	course puts	the laborat	tory experience
of the students gained	at secondary school to an equal level and gets them ready for all following laboratory training	ings. After absolvi	na of the cou	urse, the stu	dents have t	the basic skills
including handling the r	most frequently used laboratory equipments (pH-meter, UV-Vis spectrophotometer, vacuum	n rotarv evaporato	r) and have	the necessa	rv informatio	on about safety
rules as well as about v	writing laboratory diaries. The training is organized in blocks of four hours a week. The stud	ents work in grou	, ps of two acc	cording to a	firm schedu	le so that each
group absolve the com	plete set of (all) 10 exercises during semester. In the exercises, measurements of propertie	es of unknown sar	nples, basic	synthetic ar	nd purificatio	on operations
and basic methods of a	analyses are involved.			-		-
01MATZ1	Mathematics. Examination 1				ZK	2
01MAT72	Mathematics Examination 2				7K	2
01MAT1	Mathematics 1				7	
The course is devoted	to the study of the basics of calculus of one variable. It includes an introduction to differenti	ial and integral ca	Iculus with r	 articular.em	∠ ∣ nhasis on a	-+ applications in
practical problems		ai ana integrai ca	iouius, with p			
01ΜΔΤ2	Mathematics 2				7	1
The course which is th	continuation of Mathematics 1 is devoted to the integration techniques improper Riema	nn integral introd	uction to par	ametric curv	es (especia	- ally in polar
coordinates), the basic	s of sequences and infinite series, and finally to the Taylor and power series and their appli	ications.	uotion to pui			iny in pola
					7	1
Introduction to physics	hysical quantities and units. Kinematics of a particle, basic types of motion and their sup	erposition Dynam	nics of a part	icle solvina		of motion for
one-dimensional motio	in motion in a central force field forces in non-inertial reference frames. Mechanics of a sv	stem of particles	two-body pro	oblems part	icle collision	s Mechanics
of a rigid body. rotation		stern er partielee,	ine beay pro	solollio, part		
02MECH7	Mechanics - Examination				7K	2
The content of the subi	iect is the examination according to the plan of studies			I	21	2
	General Chemistry			7	7 7 K	6
General chemistry clas	Selicition of substances, concentrations, chemical reactions and equations, stoichiometric	calculations ator	ns and mole	cules chem	-, ∠r ∖ ∣ ical bond_th	one states of
matter chemical therm	advnamics first law of thermodynamics, thermochemistry second law of thermodynamics e	ntropy Gibbs ene	rav phase ar	nd chemical	equilibria el	ectrochemistry
pH. reaction kinetics. k	inetic equation. Arrhenius' equation.		gy, pridoo di		squiiona, or	ootroononnou y
150RCA1	Organic chemistry 1				7	2
Structure of organic co	properties of covalent bond reactions on covalent bonds. Nomenclature of organic	nic compounds (r	nain chain io	I Iroup locant	s prefixes a	and suffixes)
Spatial structures of or	ganic compounds, double bond isomers, chirality, enantiomers and diastereomeric compou	Inds. Configuratio	n and confor	mation. relat	tionships. Le	ewis structures.
formal charges, acidity,	, hard and soft acids and bases. Resonance, aromaticity, classification of substituents, reac	tivity of polycyclic	arenes. Inte	rmediates: o	carbocations	s, carbanions,
carbenes, radicals - ele	ectronic structure. Basic overview on alkanes and cycloalkanes, alkenes, arenes, halogend	erivatives, organc	metallic com	pounds, alc	ohols and e	thers, organic
compounds of sulfur, n	itrogen, phosphorus, silicon, other elements and carbonyl compounds chemistry.	-				-
00PT	Preparatory Week				Z	2
15TOXA	Toxicology				7K	2
Overview of basic toxic	cology, containing general and special toxicology, toxicological data, legislation and basic as	pects of chemical	compounds	handling. In	deneral toxi	icology aspects
of toxicity, metabolism.	biodistribution and elimination has been described, as well as toxicological effects. evaluat	tion of toxicity, ind	exes, and bid	ological tests	s. In special	toxicology part
selected group of organ	nic compounds, inorganic compounds, natural compounds and warfare were described from	m toxicity behavic	ur. In legislat	tion part RE	ACH. intern	ational and

Code of the group: BSPJCH2

Name of the group: BS P_JCHB 2nd year

Requirement credits in the group:

Requirement courses in the group: In this group you have to complete at least 13 courses Credits in the group: 0

Note on the group:

national regulation is described.

Yykonání zkoušky 15ORCA2 je podmíněno splněním povinností z předmětu 15ORCA1.Vykonání zkoušky15ANALY2 je podmíněno splněním povinností z předmětů 15ANAL1, 15APLA.Zápis předmětu 15POCHA je podmíněn absolvováním předmětu 15ORCA2.

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
15ANAL1	Analytical Chemistry 1 Vlastimil Vysko il, Anna Kubí ková Vlastimil Vysko il Vlastimil Vysko il (Gar.)	Z	5	3+2	L	Р
15ANALY2	Analytical Chemistry 2 Vlastimil Vysko il Vlastimil Vysko il (Gar.)	Z,ZK	5	3P+2C	L	Ρ

19FCHN2 Physical Chemistry 2 Assess Divide Burden Zimmed Victory July (Car.) Z.ZK 6 3+2 Z P 15JACH1 Nuclear Chemistry 1 Wear Loss Divide State (Car.) Z/ZK 3 2+1 L P 17JARE Nuclear Chemistry 1 Wear Loss Divide State (Car.) Z/ZK 3 2+1 L P 17JARE Nuclear Chemistry 1 Wear Loss Divide State (Car.) Z/ZK 4 2+2 L P 01MAT3 Mathematics 3 Methomatics 3 Methomatics 4 Methomatics	15FCHN1	Physical Chemistry 1 Viliam Mú ka, Jan Bárta Jan Bárta, Viliam Mú ka (Gar.)	Z,ZK	5	3+2	Z	Р
15JACH1 Nuclear Chemistry 1 And Set Johnson 2000 ZZK 3 2H L P 17JARE Water and Set Johnson 2000 ZK 2 2 L P 17JARE Mathematics 3 Mathematics 4 L P P 01MAT3 Mathematics 4 Internation 4 (Not 1) ZzK 4 2+2 L P 01MAT4 Mathematics 4 Internatics 4 Internatics 4 P P 15ORCA2 Organic Chemistry 2 Internatics 4 Laboratory Taining in Anahylical Chemistry 2 4 4 L P 15POLE Theory of Electromagnetic Field and Waves ZzK 4 4L L P 15POLE Theory of Electromagnetic Field and Waves ZzK 4 4L L P 15BOLE Theory of Electromagnetic Field and Waves ZzK 4 4L L P 15BOLE Theory of Electromagnetic Field and Waves ZzK 4 4L L P 15BOLE Theory of Electromagnetic Field and Waves ZzK 2 2P+OC Z P	15FCHN2	Physical Chemistry 2 Barbora Drtinová Barbora Drtinová Václav uba (Gar.)	Z,ZK	5	3+2	Z	Р
TJARRE Nuclear Reactors TANARE Tondé day Tondé day Tondé day Consé day (Les Sovern Potta David Key i is Covid Key i is Co	15JACH1	Nuclear Chemistry 1 Václav uba, Merja Johanna Herzig, Xenie Lytvynenko, Jan John Václav uba Jan John (Gar.)	Z,ZK	3	2+1	L	Р
OTMAT3 Mathematics 3 More all rooms (a) count Key (iii, Saverin / robust David Key (iii, Saverin / robust David Key (iii) Z,ZK 4 2+2 Z P OTMAT4 Mathematics 4 Mathematics 4 Ma	17JARE	Nuclear Reactors Tomáš Bílý Tomáš Bílý Tomáš Bílý (Gar.)	ZK	2	2	L	Р
OHMAT4 Mathematics 4 Tuble Mar Tuble Mar Tuble (Gar.) Z,ZK 4 2+2 L P 150RCA2 Organic chemistry 2 Mar State Mar Tuble Mar State (Gar.) Z,ZK 6 2P+2C Z P 15APLA Labor tarony Training in Analytical Chemistry Z 4 4L L P 15POCHA Organic Chemistry Parcial Mar State (Gar.) Z 4 4L L P 15POCHA Organic Chemistry Parcial Mar State (Gar.) Z 4 4L L P 15SPOLE Theory of Electromagnetic Field and Waves Z,ZK 4 4+1 L P 15SRCHA Fundamentals of Biochemistry Tomost Amar Mark Mar Mark Mark Mark Mark (Gar.) Z,K 2 2P+0C Z P 15ARAL Analytical Chemistry 2 Mark Mark Mark (Gar.) Z,K 5 5 15ARAL Analytical Chemistry 2 Mark Mark (Mark (Gar.) Z,K 5 5 15ARAL Anadytical Chemistry 2 Mark Mark (Mark (Gar.) <td>01MAT3</td> <td>Mathematics 3 Miroslav Kolá , David Krej i ík, Severin Pošta David Krej i ík David Krej i ík (Gar.)</td> <td>Z,ZK</td> <td>4</td> <td>2+2</td> <td>Z</td> <td>Р</td>	01MAT3	Mathematics 3 Miroslav Kolá , David Krej i ík, Severin Pošta David Krej i ík David Krej i ík (Gar.)	Z,ZK	4	2+2	Z	Р
150RCA2 Organic chemistry 2 Model Sample (Gar) Call Call </td <td>01MAT4</td> <td>Mathematics 4 Mat j Tušek Mat j Tušek (Gar.)</td> <td>Z,ZK</td> <td>4</td> <td>2+2</td> <td>L</td> <td>Р</td>	01MAT4	Mathematics 4 Mat j Tušek Mat j Tušek (Gar.)	Z,ZK	4	2+2	L	Р
15APLA Laboratory Training in Analytical Chemistry Z 4 4L L p 15POCHA Organic Chemistry Practical Mercelaw Loore. Mirosaw Loore. Mirosaw Loore. (Gar.) Z 4 4L L p 15POCHA Organic Chemistry Practical Mercelaw Loore. Mirosaw Loore. Mirosaw Loore. Mirosaw Loore. (Gar.) Z 4 4L L p 15POLE Theory of Electromagnetic Field and Waves Asst Vectorik Ads Vectorik (Cav) Z/K 4 4L+1 L p 15ZBCHA Fundamentals of Biochemistry Tonsis on mer. Rodek Index Rode Vectorik (Cav) ZK 2 2P+00C Z p 15ANAL1 Analytical Chemistry 1 Z 5	15ORCA2	Organic chemistry 2 Michal Sakmár, Ján Kozempel, Stanislav Smr ek, Martin Vlk Stanislav Smr ek Ján Kozempel (Gar.)	Z,ZK	6	2P+2C	Z	Р
15POCHA Organic Chemistry Practical Moreaux Lorence Minosity Lorence (Minosity Lorence (Gar.)) Z 4 4L L P 15POLE Theory of Electromagnetic Field and Waves Mote Visionic Ales Visionic (Gar.) Z/K 4 4+1 L P 15ZBCHA Fundamentals of Biochemistry Tomis is on me. Rode Indo Rode Indo Rode Mindo R	15APLA	Laboratory Training in Analytical Chemistry Jakub Hraní ek Jakub Hraní ek Jakub Hraní ek (Gar.)	Z	4	4L	L	Р
15POLE Theory of Electromagnetic Field and Waves Z,ZK 4 4411 L P 15ZBCHA Fundamentals of Biochemistry ZK 2 2P+0C Z P Characteristics of the courses of this group of Study Plan: Code=BSPJCH2 Name=BS P_JCHB 2nd year ZK 2 2P+0C Z P Characteristics of the courses of this group of Study Plan: Code=BSPJCH2 Name=BS P_JCHB 2nd year Z 5 5 1forANAL1 Analytical Chemistry 1 Z 5 5 5 introduction, methods of analytical tradings, tratiation curve, endpoint indication. Complex-formation stans, application and complex-formation stans, application and complex-formation stans, application and complex-formation stration curves, determation at the stand trading complex-formation stration curves, determation at the stand trading complex-formation and complex-formating and complex-formation a	15POCHA	Organic Chemistry Practical Miroslav Lorenc Miroslav Lorenc (Gar.)	Z	4	4L	L	Р
15ZBCHA Fundamentals of Biochemistry Tomas & email, Reader Indra Radek Indra Tomas & email (Ger.) ZK 2 2P+0C Z P Characteristics of the courses of this group of Study Plan: Code=BSPJCH2 Name=BS P_JCHB 2nd year Z 5 Inforduction, mellos of analytical Incensity: of theme of analytical processor (Lators influencing subility for subinetry, Statistical evaluation of results. Precipitation training, speciation of training, application of pregnation on a complex formation reactions, application of the first influencing analyticki chemine 2 nanazupe on p dm 1 Analyticki chemine 1. Kurz je zam en na instrumentifici metody analyticki chemine a spracovini vigladk. makiya; Z/K 5 ISFCHN1 Physical Chemistry 1 Z/K 5 The inclusion of the thermodynamic systems and thermodynamic properties of ideal and real gases. Neat chapters are devoced to the first, second and inclusion of hermodynamics. Z/K 5 ISFCHN2 Physical Chemistry 1 Z/ZK 5 Leature of Physical Chemistry 2 Cousts S/ZK 5 Leature of Physical Chemistry 2	15POLE	Theory of Electromagnetic Field and Waves Aleš Vetešník Aleš Vetešník Aleš Vetešník (Gar.)	Z,ZK	4	4+1	L	Р
Characteristics of the courses of this group of Study Plan: Code=BSPJCH2 Name=BS P_JCHB 2nd year 15ANAL1 Analytical Chemistry 1 Z 5 Indvolution, methods of analytical treamistry, sterme of analytical procedures. Sampling and preparation of Hample. Precipitation reactions, stability constant, factors influencing subility, Gravimetry, Statistical evaluation of reastls, Pacipitation tractions, titration, curve, endpoint indication. Curve, endp	15ZBCHA	Fundamentals of Biochemistry Tomáš Je men, Radek Indra Radek Indra Tomáš Je men (Gar.)	ZK	2	2P+0C	Z	Р
15ANAL1 Analytical Chemistry 1 Z 5 Introduction, methods of analytical chemistry a theme of analytical procedures. Sampling and preparation of Hampia. Precipitation exactions, subility conventor, factors influencing subility Conventory. Statistical evaluation of tresults. Precipitation urve, endpoint indication. Complex-formation reactions, subility conventor, application reactions, subility conventor, application reactions, application of precipitation and complex-formation reactions. 15ANALY2 Analytical Chemistry 1 Z,ZK 5 Analytical Chemistry 1 Physical Chemistry 2 Analytical Chemistry 2 5 Analytical Chemistry 1 Physical Chemistry 1 Z,ZK 5 The introduction, metadowani convention on the term andynamic systems and thermodynamic properties of ideal and real gases. Next chapters are deviced to the first, second thir law of thermodynamics. Z,ZK 5 15FCHN1 Physical Chemistry 1 Z,ZK 5 15FCHN2 Physical Chemistry 2 Z,ZK 5 15FCHN2 Physical Chemistry 2 S 2 Z 5 15FCHN2 Physical Chemistry 1 Z,ZK 5 3 15FCHN2 Z,ZK 5 3 3 3 3 3 3 3 3 3 3 3	Characteristics of the	courses of this group of Study Plan: Code=BSPJCH2 Name=E	BS P_JCHB 2	nd year			
15ANALY2 Analytical Chemistry 2 Z,ZK 5 Analytická chemie 2 navauje na p dem 1 Analytická chemie 1. Kurz je zam en na instrumentální metody analytické chemie a zpracování výsledk analýzy. Z,ZK 5 15FCHN1 Physical Chemistry 1 Z,ZK 5 The introductíve pari is devoted to the recapitulation of the thermodynamic systems and thermodynamic, phase and chemical equilibriums as well as to the elementals of nonequilibrium thermodynamics. Z,ZK 5 15FCHN2 Physical Chemistry 2 cucases on thermodynamics of solutions, particularly on electolytes. Basics of colloidal chemistry extend the theory of solvents in the end of the lecture. 5,ZK 3 15GCHN2 Physical Chemistry 1 Z,ZK 3 Concept and history of nuclear chemistry, and radiochemistry, nuclear entities, nuclear reactions, natural and artificial radioactivity. Kinetics of nuclear reactions. Z,ZK 2 17JARE Nuclear Reactors Nuclear Reactors ZK 2 Introduction. Word power issue. Standard types of nuclear roeactors, fuel assemblies, active core, control systems, safety systems, containment. Classification of reactors into 12 generation. Standard types of nuclear reactors reactors, fuel assemblies, active core, control systems, safety systems, containment. Classification of reactors into 12 generation. Standard types of nuclear roeactors (PKP), Western-type WR (Westinghouse, KWU, Frantanow), VVE-type reactors of generation IIII (EPR, AP-1000, VVE 1200), Reactors of gen	15ANAL1 Ana Introduction, methods of anal solubility. Gravimetry. Statistic stability of complexes. Chelate for separation and identificati detrmination of strong and we	alytical Chemistry 1 lytical chemistry, scheme of analytical procedures. Sampling and preparation of Hamp cal evaluation of results. Precipitation titrations, titration curve, endpoint indication. Cor pometric titrations, titration curve, endpoint indication. Qualitative analysis of cations and on of ions. Acid-base reactions, acids, basis, acidity function, salts, hydrolysis of salts, eak acids, bases and salts. Acid-base reactions in nonaqueous solvents.	le. Precipitation re nplex-formation re anions, applicatio , buffers, acid-bas	eactions, so eactions, sta on of precipi e indicators	 ability production ability constant tation and co and constant tation and constant and constant and constant tation and constant and	Z uct, factores i ant, factors inf omplex-format titrations, titra	5 nfluencing fluencing tion reactions tion curves,
Analyticka chemie 2 havazuje na p dom 1 Analyticka chemie 1. Kurz je zam en na instrumentalm metody analyticke chemie a zpracovani vysiedki, analyzy. ISFCHN1 Physical Chemistry 1 Z.ZK 5 The introductive part is devoted to the recapitulation of the thermodynamic systems and hermodynamic properties of ideal and real gases. Next chapters are devoted to the first, second and third law of thermodynamics, and their applications. Last but not least, attention is devoted also to the thermodynamic, phase and chemical equilibriums as well as to the elementals of nonequilibrium thermodynamics. 1SFCHN2 Physical Chemistry 2 Z.ZK 3 Lecture of Physical Chemistry 1 Z.ZK 3 Concept and history of nuclear Chemistry 1 Z.ZK 3 Concept and history of nuclear chemistry 1 Z.ZK 3 Introduction. World power issue: Previous evolution of power reactors, fuel assemblies, active core, control systems, safety systems, containment. Classification of reactors into IV generations. Standard types of nuclear reactors (PWR). Western-type PWR (Westinghouse, KWU, Framatory). VVER-type reactors, fuel assemblies, active core, control systems, safety systems. So selected concepts. ICRP scenarios of vord evolution, hydrogen power, role of nuclear power plant. Boiling water reactors, flash breeder reactors, flash breeder reactors. Introduction to proposed systems. Six selected concepts. ICRP scenarios of vord evolution, hydrogen power, role of nuclear power in long-term outlook Z.ZK 4 U	15ANALY2 Ana	alytical Chemistry 2			Z	,ZK	5
The introductive part is devoted to the recapitulation of the thermodynamic systems and thermodynamic properties of ideal and real gases. Next chapters are devoted to the first, second and third law of thermodynamics, and their applications. Last but not least, attention is devoted also to the thermodynamic, phase and chemical equilibriums as well as to the elementals of nonequilibrium thermodynamics. 15FCHN2 Physical Chemistry 2 Z,ZK 5 Lecture of Physical Chemistry 2 nuclear chemistry and radiochemistry, nuclear entities, nuclear reactions, nast and energy balance of nuclear index of adapting in a discontrol with final radioactivity. Kinetics of nuclear reactions, laws of radioactivit (kinetics of nuclear reactions, laws of radioactivit (kinetics of nuclear reactions, laws of radioactivit (kinetics of nuclear reactions, laws of radioactivit (kinetics) of nuclear reactions, laws of radioactivit (kinetics) of nuclear reactions, laws of radioactivit (kinetics) of nuclear reactions, laws of nadioactivit (kinetics) of nuclear reactions, laws of nadioactivit (kinetics) of nuclear reactions, laws and energy balance of nuclear part exactors. Lead assemblies, active core, control systems, safety systems, containment. Classification of ractors into five generations. Standard types of nuclear reactors. Identify and there of nuclear parts and the origen parties. State sectors (PWR). Western-type PWR (Westinghouse, KWU, Framatom), VVER-type reactors, Temelin nuclear parts of or nuclear power plant. Boiling water reactors, heavy water reactors, safety systems, containters, text breader reactors, high-temperature gas cooled reactors in tools and theorems related to the study of finite-dimensional vector spaces. Z,ZK 4 O1MAT1 Mathematics 4 Z,ZK 4 4 <t< td=""><td>15FCHN1 Phy</td><td>e na piedmi ti Analyticka chemie 1. Kurz je zamiljen na instrumentalni metody analytic /sical Chemistry 1</td><td>ke cnemie a zpra</td><td>covani vysi</td><td>edk analyz</td><td><u>,</u> .,ZK</td><td>5</td></t<>	15FCHN1 Phy	e na piedmi ti Analyticka chemie 1. Kurz je zamiljen na instrumentalni metody analytic /sical Chemistry 1	ke cnemie a zpra	covani vysi	edk analyz	<u>,</u> .,ZK	5
and the ard of method ynamics. If the explanation. If the explanation is deviced as 0 the method ynamic, prase and chemical equilations as were as 0 the explanation of nonequilibrium thermodynamics. If the explanation of the explanatin the explanatis the explanation of the expla	The introductive part is devote	ed to the recapitulation of the thermodynamic systems and thermodynamic properties of	of ideal and real ga	ases. Next o	hapters are	devoted to the	e first, second
15FCHN2 Physical Chemistry 2 Z,ZK 5 Lecture of Physical Chemistry 2 Z,ZK 3 Concept and history of nuclear Chemistry 1 Z,ZK 3 Concept and history of nuclear chemistry and radiochemistry, nuclear enetities, nuclear reactions, ass and energy balance of nuclei and energy of alpha, beta decay, gamma deaxcitation in nuclear reactions. Z/ZK 3 17JARE Nuclear Reactors ZK 2 Introduction. World power issue. Previous evolution of power reactor. Nuclear fission reactors, fuel assemblies, active core, control systems, safety systems, containment. Classification of reactors into IV generations. Sacodard types of nuclear one encloss: concept, description, layout, previous evolution, world share, perspectives. Pressurized water reactors, fast breeder reactors, high-temperature gas cooled reactors. Second nuclear reactors of generation IV GIF and INPRO initiatives. Evaluation and selection of proposed systems. Six selected concepts. ICRP scenarios of word evolution, hydrogen power, role of nuclear power in long-term outdook Z,ZK 4 OTIMAT3 Mathematics 4 Z,ZK 4 4 Linear and non-linear differential equations of the first order. Linear differential equations of higher order with constant coefficients. Multivariable calculus and its applications. 1 15ORCA2 Organic chemistry 4 Z 4 4 Introduction to the second group of organic compounds, carboxylic acids and heir der	of nonequilibrium thermodynam	nics and their applications. Last but not least, attention is devoted also to the thermodynamics.	iamic, phase and	chemical e	quilibriums a	is well as to tr	e elementais
Technology and internative values of memory and intervent of the field of the	15FCHN2 Phy	vsical Chemistry 2	idal chomistry ovt	and the the	Z	,ZK	5 of the lecture
Concept and history of nuclear chemistry and radiochemistry, nuclear neactions, nuclear neactions, mass and energy balance of nuclear neactions. ZK 2 17JARE Nuclear Reactors ZK 2 Introduction. World power issue. Previous evolution of power reactors. Concept, description, layout, previous evolution, world share, perspectives. Pressurized water reactors, high-temperature gas cooled reactors. Second nuclear near concepts, description, layout, previous evolution, world share, perspectives. Pressurized water reactors, high-temperature gas cooled reactors. Second nuclear era. reactors of generation III (EPR, AP-1000, VVER 1200). Reactors of generation IV: GIF and INPRO initiatives. Evaluation and selection of proposed systems. Six selected concepts. ICRP scenarios of word evolution, hydrogen power, role of nuclear power intong-term outlook 01MAT3 Mathematics 3 Z,ZK 4 The subject summarises the most important notions and theorems related to the study of finite-dimensional vector spaces. Z,ZK 4 15ORCA2 Organic chemistry 2 Z,ZK 6 Introduction to the second group of organic compounds, carboxylic acids and their derivatives, heterocyclic compounds, industrial organic compounds, industrial and natural. Introduction to the metods of structural analysis. Z 4 15ORCA2 Organic Chemistry 2 Z,ZK 6 11roduction to the second group of organic compounds, carboxylic acids and their derivatives, heterocyclic compounds, industrial organic compounds in analysis of cations and	15JACH1 Nuc	clear Chemistry 1	idal chemistry ext			.,ZK	3
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15POLE Theory of Electromagnetic Field and Waves Z,ZK 4 The course comprises of three parts: the first part contains selected passages of the theory of the electromagnetic field, the second part is dedicated to the wave motion and the optics, and the third part is the introduction to the atomic physics. ZK 2 15ZBCHA Fundamentals of Biochemistry ZK 2 The course covers the whole field of a general biochemistry as well as basic biochemical pathways. The special attention is paid to make students understand interconnection of cell	15POCHA Organic Chemistry Practical Z 4 The basic practices of organic chemistry have the task to teach students the basics of laboratory techniques and methodology of work in the organic laboratory. Synthetic tasks are chosen so that the students are acquainted with basic chemical operations, and to obtain information on the preparation and properties of organic compounds. Students thus have to supplement the theoretical knowledge from the lectures of organic chemistry.						
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The course covers the whole field of a general biochemistry as well as basic biochemical pathways. The special attention is paid to make students understand interconnection of cell	and the third part is the introd	Juction to the atomic physics.				7K	2
processes essential for the life.	The course covers the whole processes essential for the life	15ZBCHA Fundamentals of Biochemistry ZK 2 The course covers the whole field of a general biochemistry as well as basic biochemical pathways. The special attention is paid to make students understand interconnection of cell processes essential for the life. ZK 2					

Code of the group: BSPJCH3 Name of the group: BS P_JCHB 3rd year

Requirement credits in the group:

Requirement courses in the group: In this group you have to complete at least 15 courses Credits in the group: 0

Note on the group:

Zápis předmětu 15JACH2 je podmíněn absolvováním předmětu 15JACH1.Zápis předmětu 15RATEC je podmíněn absolvováním předmětu 15JACH1.Zápis předmětu 15PINS je podmíněn současným zápisem nebo absolvováním předmětu 15INSN1.Zápis předmětu 15DEIZ je podmíněn současným

	zapisem nebo absolvovani predmetu 15Diz.					
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
15BPCH1	Bachelor Thesis 1 Petr Distler, Martin Vlk, Jan Bárta, Barbora Drtinová, Václav uba, Josef Filgas, Dušan Vopálka, Jan Král, Tereza Janská, Václav uba Václav uba (Gar.)	Z	5	0+5	Z	Ρ
15BPCH2	Bachelor Thesis 2 Petr Distler, Martin Vlk, Jan Bárta, Barbora Drtinová, Václav uba, Josef Filgas, Dušan Vopálka, Jan Král, Tereza Janská, Lenka Prouzová Procházková Václav uba (Gar.)	Z	10	0+10	L	Ρ
17BPROV	Safe operation of nuclear facilities Lenka Frýbortová, ubomír Sklenka Lenka Frýbortová (Gar.)	KZ	2	2P		Р
15DIZ	Detection of Ionizing Radiation Jan John, Martin Da o Jan John Jan John (Gar.)	ZK	2	2+0	L	Ρ
15EXK1	Excursion 1 Barbora Drtinová, Alena Zavadilová Alena Zavadilová Barbora Drtinová (Gar.)	Z	1	5 dn	L	Р
15INSN1	Instrumental Methods 1 Martin VIk, Alena Zavadilová Martin VIk	ZK	3	3+0	L	Р
15JACH2	Nuclear Chemistry 2 Václav uba, Merja Johanna Herzig, Xenie Lytvynenko, Jan John Václav uba Václav uba (Gar.)	Z,ZK	4	2+2	Z	Р
15MZD	Measurement and Data Handling Aleš Vetešník, Dušan Vopálka, Lucie Baborová Aleš Vetešník Aleš Vetešník (Gar.)	Z,ZK	3	2+1	Z	Р
12NMEA	Numerical Methods for Scientists and Engineers Alena Zavadilová, Pavel Váchal Pavel Váchal Pavel Váchal (Gar.)	KZ	3	2+2	L	Р
15DEIZ	Practical Exercises in Detection of Ionizing Radiation Pavel Bartl, Mojmír N mec, Miroslava Semelová Miroslava Semelová Mojmír N mec (Gar.)	KZ	3	0+3	L	Р
15PRFCH	Practical Exercises in Physical Chemistry Kate ina Ušelová Kate ina Ušelová	Z	5	0P+4C	Z	Ρ
15PINS	Laboratory Practice in Instrumental Methods Martin Vlk, Alena Zavadilová Martin Vlk Alena Zavadilová (Gar.)	KZ	2	0+3	L	Р
15RATEC	Practical Exercises in Radiochemical Techniques Kate ina ubová, Pavel Bartl, Mojmír N mec, Miroslava Semelová Miroslava Semelová Mojmír N mec (Gar.)	KZ	2	0+2	Z	Р
15SBP	Bachelor Thesis Seminar Barbora Drtinová, Alena Zavadilová Alena Zavadilová Alena Zavadilová (Gar.)	Z	1	0+1	Z	Р
16ZDOZ1	Fundamentals of Radiation Dosimetry 1 Tomáš Trojek Tomáš Trojek Tomáš Trojek (Gar.)	Z,ZK	4	2+2		Р

Characteristics of the courses of this group of Study Plan: Code=BSPJCH3 Name=BS P_JCHB 3rd year

15BPCH1	Bachelor Thesis 1	Z	5			
Background research and results of research						
15BPCH2	Bachelor Thesis 2	Z	10			
Background research a	nd results of research					
17BPROV	Safe operation of nuclear facilities	KZ	2			
The aim of the subject i	s to familiarize students with basic principles of nuclear safety.					
15DIZ	Detection of Ionizing Radiation	ZK	2			
The first part of the cou	rse deals with the definitions, properties, and application of the detectors of ionising radiation (IR). In the second part, a deta	iled overview of th	e gas detectors,			
scintillation detectors, d	letectors for high energy IR, semiconductor detectors, and integrating solid state detectors is given. The last part of the cours	e reviews the prin	ciples of the			
statistical treatment of o	Jata, and limits of detection.					
15EXK1	Excursion 1	Z	1			
The excursion aims at r	nediating the students the acquaintance with various radiochemical and radiation methods used in practice.					
15INSN1	Instrumental Methods 1	ZK	3			
Overview of selected m	, odern instrumental methods of research and analysis, theoretical fundamentals, instrumental technique, utilization and appli	cation.				
15JACH2	Nuclear Chemistry 2	Z,ZK	4			
The following topics are	discussed in detail in the course: Nuclear reactions yield, reaction cross section, excitation function. Fission reaction, sponta	neous fission. Ch	emistry of atoms			
formed in a nuclear reaction, local temperature, atomic recoil and recoil energy, recoil of atom bound in a molecule, hot atom chemistry, retention, Szilard Chalmers reaction.						
15MZD	Measurement and Data Handling	Z,ZK	3			
Characteristics of statistical distribution functions (one-dimensional data), hypotesis testing, analysis of variance (ANOVA), correlation analysis, regression, statistical analysis of						
multidimensional data;	multidimensional data; chemometrics; testing of analytical methods; numerical methods and computers in data processing					

12NMEA	Numerical Methods for Scientists and Engineers	KZ	3		
There are explained the	basic principles of numerical mathematics important for numerical solving of problems important for physics and technology.	Methods for solut	tion of tasks very		
important for physicists	(ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated compu	tational environm	ent MATLAB is		
used as a demonstratio	n tool. The seminars are held in computer laboratory and PASCAL is used as a principle programming language and MATLA	B is also used.			
15DEIZ	Practical Exercises in Detection of Ionizing Radiation	KZ	3		
This laboratory exercise	is a practical introduction to fundamental principles of detection of ionizing radiation (IR), interaction of IR with matter, and fun	ctionality and sett	ings of particular		
types of detectors and o	detection systems.				
15PRFCH	Practical Exercises in Physical Chemistry	Z	5		
Principles of fundament	al physico-chemical phenomena are demonstrated in ten exercises. Basic thermodynamic, kinetic and electrochemical charac	teristics, as equili	brium constants,		
rate constant, buffer cap	acity etc., are determinated. Required data are obtained by means of chemical analysis (e.g. titration, extraction) and by comm	ion instrumental r	nethods (UV-VIS		
spectrophotometry, pola	arography, potentiometry, conductometry, electrolysis, viscosimetry). Emphasis is given on appropriate interpretation of meas	ured data and the	eir mathematical		
and statistical evaluation	n.				
15PINS	Laboratory Practice in Instrumental Methods	KZ	2		
Practical training of stud	ents in the use of selected modern instrumental methods and techniques for determination of required parameters		•		
15RATEC	Practical Exercises in Radiochemical Techniques	KZ	2		
The exercise is oriented	on the training of students in laboratory praxis and work with open radioactive sources through basic lab operations such as	s pipetting, extrac	tion and		
chromatography technic	ues. Training is also focused on decontamination of surfaces and clean-up of the accident, work behind shielding and in a gle	ove box.			
15SBP	Bachelor Thesis Seminar	Z	1		
The aim is to prepare st	udents to write and defend bachelor thesis, including work with information sources and to acquire basic presentation skills.		'		
16ZDOZ1	Fundamentals of Radiation Dosimetry 1	Z,ZK	4		
History, development, and objectives of dosimetry. Quantities and units used for description of sources, fields, interactions of ionizing radiation, ionizations, energy transfer and					
absorption. Fundamenta	als of the effects of ionizing radiation.				

Name of the block: Compulsory elective courses Minimal number of credits of the block: 0 The role of the block: PV

Code of the group: BSSPOLVEDY Name of the group: BS - Social Sciences

Requirement credits in the group:

Requirement courses in the group: In this group you have to complete at least 1 course Credits in the group: 0

Note on the group:

Only one of these courses is obligatory.

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
00EKOT	Economy in Technology Jana Ková ová	Z	1	2+0		PV
00ETV	Ethics of Science and Technology Jakub Hají ek Jana Ková ová	Z	1	0+2	L	PV
00RET	Rhetoric Jana Ková ová Jana Ková ová Jana Ková ová (Gar.)	Z	1	0+2		PV
00UPRA	Introduction to Law Martin ech Jana Ková ová	Z	1	0+2		PV
00UPSY	Introduction to Psychology Jakub Hají ek Jana Ková ová	Z	1	0+2		PV

Characteristics of the courses of this group of Study Plan: Code=BSSPOLVEDY Name=BS - Social Sciences

00EKOT	Economy in Technology	Z	1		
The course introduces t	he basics of micro- and macroeconomics.				
00ETV	Ethics of Science and Technology	Z	1		
00RET	Rhetoric	Z	1		
The course is focused of	n the acquisition of speech and voice techniques and on the rules of correct pronounciation. The course is also devoted to the	ne composition of	public speech		
as well as to its nonverbal aspects. Stylistics exercises, strategies for coping with stage-fright and a short excursion into the history of rhetoric are an integral part of the course.					
00UPRA	Introduction to Law	Z	1		
00UPSY	Introduction to Psychology	Z	1		

Code of the group: BSPJAZYKYZK Name of the group: BS P languages Requirement credits in the group: Requirement courses in the group: In this group you have to complete at least 2 courses Credits in the group: 0 Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
04XAMZK	English for Intermediate Students Examination Jana Ková ová, Slav na Brownová Jana Ková ová	ZK	4		Z	PV
04XAPZK	English for Advanced Students Examination Slav na Brownová, Darren Copeland Jana Ková ová	ZK	4		Z	PV
04XCESZZK	Czech for Foreigners Beginners - Examination Slav na Brownová Jana Ková ová Jana Ková ová (Gar.)	ZK	4		Z	PV
04XCESMZK	Czech for Intermediate Students Examination Jana Ková ová Jana Ková ová Jana Ková ová (Gar.)	ZK	4		Z	PV
04XCESPZK	Czech for Foreign Students - Advanced Examination Jana Ková ová Jana Ková ová Jana Ková ová (Gar.)	ZK	4		Z	PV
04XFMZK	French for Intermediate Students Examination V ra Šlechtová V ra Šlechtová (Gar.)	ZK	4		Z	PV
04XFPZK	French for Advanced Students Examination V ra Šlechtová V ra Šlechtová (Gar.)	ZK	4		Z	PV
04XFZZK	French for Beginners Examination V ra Šlechtová V ra Šlechtová (Gar.)	ZK	3		L	PV
04XNMZK	German for Intermediate Students Examination Miloslava echová Miloslava echová Miloslava echová (Gar.)	ZK	4		Z	PV
04XNPZK	German for Advanced Students Examination Miloslava echová Miloslava echová Miloslava echová (Gar.)	ZK	4		Z	PV
04XRMZK	Russian for Intermediate Students Examination Zhanna Isaeva Zhanna Isaeva Zhanna Isaeva (Gar.)	ZK	4		Z	PV
04XRPZK	Russian for Advanced Students Examination Zhanna Isaeva Zhanna Isaeva Zhanna Isaeva (Gar.)	ZK	4		Z	PV
04XRZZK	Russian for Beginners Examination Zhanna Isaeva Zhanna Isaeva Zhanna Isaeva (Gar.)	ZK	3		L	PV
04XSMZK	Spanish for Intermediate Students Examination Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	ZK	4		Z	PV
04XSPZK	Spanish for Advanced Students Examination Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	ZK	4		Z	PV
04XSZZK	Spanish for Beginners Examination Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	ZK	3		L	PV

Characteristics of the courses of this group of Study Plan: Code=BSPJAZYKYZK Name=BS P languages

04XAMZK	English for Intermediate Students Examination	ZK	4			
The course content is the	, ne examination as given by the study plan. The examination covers the AM1, AM2, and AM3 courses and consists of two par	s - written (100 m	nin) and oral			
(20-30 min). The studer	t is expected to master the AM syllabus and demonstrate the ability to apply their knowledge gained in the three English cou	rses.				
04XAPZK	English for Advanced Students Examination	ZK	4			
The course content is the	e examination as given by the study plan. The student is supposed to demonstrate mastering the AP3 syllabus and the ability	to apply their know	wledge obtained			
in the three AP courses	. The examination consists of 2 parts - written (100 min) and oral (30 min) and includes also oral presentation of a topic from	the student's field	d of study.			
04XCESZZK	Czech for Foreigners Beginners - Examination	ZK	4			
The course content is the	, he examination as given by the study plan. The examination consisting of a written and oral part covers all the topics of the 0^2	XCESZ1,2,3 cou	rses and can			
only be taken after succ	cessful completion of all three courses. Detailed information is to be obtained from the teacher.					
04XCESMZK	Czech for Intermediate Students Examination	ZK	4			
The course content is the	e examination as given by the study plan. The examination consisting of a written and oral part covers all the topics of the C	ESM1,2,3 courses	s and can only			
be taken after successf	ul completion of the 3 courses. Detailed information is to be obtained from the teacher.					
04XCESPZK	Czech for Foreign Students - Advanced Examination	ZK	4			
The course content is the	e examination as given by the study plan. The examination consisting of a written and oral part covers all the topics of the C	ESP1,2,3 courses	and can only			
be taken after successf	ul completion of the 3 courses. Detailed information is to be obtained from the teacher.					
04XFMZK	French for Intermediate Students Examination	ZK	4			
The content is the exan	nination as given by the study programme. The whole French programme is ended with an examination covering the contents	of FM1-FM3. The	examination			
consists of a written and	d oral part and is organized according to Examination Instructions, a document available on the web.					
04XFPZK	French for Advanced Students Examination	ZK	4			
The whole French prog	am is ended with an examination covering the contents of FP1-FP3. The examination consists of a written and/or an oral par	t and is organized	according to			
Examination Instruction	s, a document available on the web. Assessment of the presentation is included into the examination grading.					
04XFZZK	French for Beginners Examination	ZK	3			
The content is the exan	nination as given by the study plan. The course is terminated with an examination consisting of oral and written part. The exam	nination is ruled b	y the document			
Instruction for examinat	ion. Its content covers the levels FZ1 - FZ5.					
04XNMZK	German for Intermediate Students Examination	ZK	4			
The course content is the	e examination as given by the study plan. The whole German for Intermediate Students Course is completed by an examination	on consisting of tw	vo parts - written			
and oral, which cover th	e courses NM1 - NM3. The oral part follows after passing the written part successfully and after obtaining the 04NM3 assess	ment. More detail	led information			
is to be obtained from t	he teacher.					
04XNPZK	German for Advanced Students Examination	ZK	4			
The course content is the	he examination as given by the study plan. The whole German for Advanced Students Course is completed by an examination	n consisting of two	o parts - written			
and oral, which cover the courses NP1 - NP3. The oral part follows after passing the written part successfully and after obtaining the 04NP3 ungraded assessment. More detailed						
information is to be obta	information is to be obtained from the teacher.					

04XRMZK Russian for Intermediate Students Examination	ZK	4
The course content is the examination as given by the study plan. The course is completed by taking a written and oral examination testing the know	/ledge and skills a	acquired in RM1
- RM3. Students are eligible for the oral examination only after a prior pass in RM3 and a successful written examination. Students are given instruct	ions by the teach	er.
04XRPZK Russian for Advanced Students Examination	ZK	4
The course content is the examination as given by the study plan. The course is completed by taking a written and oral examination testing the know	ledge and skills a	acquired in RP1
- RP3. Students are eligible for the oral examination only after a prior pass in RP3 and a successful written examination. Students are given instruction	ons by the teache	⊧r.
04XRZZK Russian for Beginners Examination	ZK	3
The course content is the examination as given by the study plan. The course is completed by taking a written and oral examination testing the know	ledge and skills a	acquired in RZ1
- RZ5. Students are eligible for the oral examination only after a prior pass in RZ5 and a successful written examination. Students are given instruction	ons by the teache	r.
04XSMZK Spanish for Intermediate Students Examination	ZK	4
The course content is the examination as given by the study plan. SMZK examination consists of two parts - written and oral; to be eligible for the writte	n part, students w	ill have obtained
non-graded assessment for course SM3.Oral examination follows the written part.		
04XSPZK Spanish for Advanced Students Examination	ZK	4
The course content is the examination as given by the study plan. Examination SPZK consists of two parts, namely oral and written. The prerequisite I	for admission to o	ral part is having
passed the written test. Examination content is based on syllabi of courses SP1, SP2, and SP3 or on an individual study plan of the student.		
04XSZZK Spanish for Beginners Examination	ZK	3
The course content is the examination as given by the study plan. Examination consists of two parts - written and oral. Student can register for oral e	examination only i	f he/she has
passed the written examination test.		

Name of the block: Elective courses Minimal number of credits of the block: 0 The role of the block: V

Code of the group: BSPJCHV Name of the group: BS P_JCHB Optional courses Requirement credits in the group: Requirement courses in the group: Credits in the group: 0

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members)	Completion	Credits	Scope	Semester	Role
	Tutors, authors and guarantors (gar.)					
15CHEM	Analytical Calculations and Chemometry Principals Ji í Zima Ji í Zima Ji í Zima (Gar.)	ZK	2	2+0	Z	V
02DEF1	History of Physics 1 Igor Jex Igor Jex (Gar.)	Z	2	2+0	Z	V
02DEF2	History of Physics 2 Igor Jex Igor Jex (Gar.)	Z	2	2+0	L	V
16EPAM	Exact Methods in Research of Historic Monuments Ladislav Musílek Ladislav Musílek Ladislav Musílek (Gar.)	ZK	2	2+0	Z	V
02PRAK	Experimental Laboratory Libor Škoda Libor Škoda (Gar.)	КZ	4	0+4	L	V
04AKS	English Conversation Jana Ková ová Jana Ková ová (Gar.)	Z	1	0+2	L	V
02KF	Quantum Physics Filip Petrásek Petr Jizba Petr Jizba (Gar.)	Z,ZK	3	2P+1C	Z	V
00MAM1	Essentials of High School Course 1 David B e	Z	1	0+1		V
00MAM2	Essentials of High School Math Course 2 Lukáš Heriban Severin Pošta Lukáš Heriban (Gar.)	Z	1	0+1		V
01PRSTB	Probability and Statistics B Tomáš Hobza Tomáš Hobza Tomáš Hobza (Gar.)	KZ	4	3+1	Z	V
TV-1	Physical Education	Z	1		Z	V
TV-2	Physical Education	Z	1		L	V
TV-3	Physical education	Z	1	0+2	Z	V
TV-4	Physical education	Z	1	0+2	L	V
14TED	Creating Electronic Documents Aleš Materna, Ji í Martin ík Aleš Materna Aleš Materna (Gar.)	Z	2	26C		V
02UFEC	Introduction to Elementary Particle Physics Marek Matas, Jaroslav Biel ík Jaroslav Biel ík (Gar.)	Z	2	2+0	Z	V
18ZALG	Basics of Algorithmization Jan Tomsa, Petr Pauš, Vladimír Jarý, František Vold ich, Miroslav Virius, František Gašpar, Zuzana Pet í ková Vladimír Jarý Miroslav Virius (Gar.)	Z,ZK	4	2+2	L	V
16ZBAF1	Fundamentals of Human Biology, Anatomy and Physiology 1 Alena Doubková, Šimon Vaculín, Zde ka Polívková, Josef Stingl Alena Doubková Alena Doubková (Gar.)	Z,ZK	4	2+2	z	v

	Fundamentals of Human Biology, Anatomy and Physiology					
16ZBAF2	Alena Doubková, Šimon Vaculín, Josef Stingl Alena Doubková Alena Doubková (Gar.)	Z,ZK	4	2+2	L	V
02ZJFY	Fundamentals of Nuclear Physics Vladimír Wagner Vladimír Wagner (Gar.)	Z,ZK	5	3P+2C	Z	V
18ZPRO	Basics of Programming Jan Tomsa, Petr Pauš, Vladimír Jarý, František Vold ich, Miroslav Virius, Zuzana Pet í ková, Nichita Vatamaniuc, Jan Vondruška, Maksym Dreval, Miroslav Virius Miroslav Virius (Gar.)	Z	4	4C	Z	V
Characteristics of th	e courses of this group of Study Plan: Code=BSPJCHV Name=I	BS P_JCHB (Optional	courses		
15CHEM Ar	nalytical Calculations and Chemometry Principals				ZK	2
Lecture deals with basic pri	nciples of chemometry including errors in classical and instrumental analysis, probabilit	ty theory, propaga	tion of error	s, basic dat	a distributions	, one- and
two-tailed significance testil	ng, hypothesis testing, least squares regression and correlation, calibration and fitting metry of redev. acid has a complex and provinitation reactions, are vimetric staichiometry.	nethods, non-para	metric testi	ng, seminar	part consists	of equation
spectrophotometry and sep	aration methods, solving of complex forming equilibria			i potentiom	etry, coulonie	u y,
02DEE1	story of Physics 1				7	2
Physics and its place in the	system of sciences. The relationship of man and nature. Natural sciences in ancient Or	ientand Greece.	Greek natur	ا hal philosoph	ers. Aristotle.	Physics in
Helenistic period, Archimed	Arabic science, European science in Middle Ages. Renaissance - da Vinci, Giordano B	Bruno. Copernicus	s, Kepler, G	alileo, Huyge	ens. The birth	of physics
as experimental science. No	ewton and his work.					
02DEF2 Hi	story of Physics 2				Z	2
Development of classical m	echanics after Newton, Bernoulli's, Euler, Lagrange. Historical development of optics, c	orpuscular and wa	ave approad	h. Electricity	/ and magnet	ism -
electrostatics, galvanism, e	lectrodynamics and electromagnetism, Faraday and Maxwell. Thermodynamics and its	laws, statistical pl	nysics, Boltz	mann. The l	pirth of moder	n quantum
and relativistic physics, Plai	nck and Einstein. Discovery of radioaktivity, structure of atom, atomic nucleus, Rutherfol	rd and Bohr. The v	way to nucle	ar energy, E	lementary pa	irticles,
	profinatore and oniverse of today.				71/	0
Aims and methods of historic	Kact Methods In Research of Historic Monuments	ce and related me	thods furthe	r radiation m	∠ n ∣ Dethods dendi	
archaeomagnetism), analyt	ical methods for determination of origin and production technologies of artefacts (activa	tion analysis. X-ra	av fluoresce	nce analvsis	s and other m	ethods).
photogrammetry.		, , , , , , , , , , , , , , , , , , , .	,			,,
02PRAK Ex	perimental Laboratory				KZ	4
Lecture is intended primaril	y for students who study branch Nuclear Chemistry engineering, or practically oriented	bachelor's specia	lizations of	branch Nucl	ear engineeri	ng. But it can
be also visited by students	interested in the other specializations. During Experimental laboratory, students learn h	ow to prepare for	experiment	s (including	work with the	literature),
the implementation of the m	easurement (acquire of different experimental procedures and routines), will teach writin	g the records of m	neasuremen	t, processin	g and evaluati	on of results.
At the same time practically	v extend the knowledge gained in lectures on physics.				-	4
U4AKS Et	1glish Conversation student's communication skills acquired throughout their provinus studios. It aims to im		of oral com		Z The student y	1 will dovolop
their vocabulary for various	communication situations and will master their communication strategy. They will also r	practise their lister	ning skills in	order to be	ter follow and	participate
in discussions. The student	will be trained to express their ideas clearly and according to current English usage, an	d become a more	confident s	peaker.		F F
02KF Q	uantum Physics			Z	"ZK	3
State description, wave fun	ction, postulates of quantum mechanics, Born s statistical interpretation, expectation va	alues, Schrödinge	r equation,	Heisenberg	uncertainty p	rinciple,
quantization of angular mor	nentum, solution of simple systems, hydrogen atom.					
00MAM1 E	ssentials of High School Course 1				Z	1
Students are introduced to	mathematical concepts and methods used in the introductory physics course.				-	4
00MAM2 ES	ssentials of High School Math Course 2				Ζ	1
	robability and Statistics B				k7	1
It is a basic course of proba	ibility theory and Statistics D	ning with the class	ical definitio	n and conti	nuina till the k	-+ voropomo
definition. The notions as ra	indom variable, distribution function of random variable and characteristics of random va	ariable are treated	and basic	limit theorer	ns are stated	and proved.
On the basis of this theory	the basic methods of mathematical statistics such as estimation of distribution parameter	ers and hypothesi	s testing are	explained.		
TV-1 Pl	nysical Education				Z	1
TV-2 Pł	nysical Education				Z	1
TV-3 Pl	hysical education				Z	1
TV-4 Pł	hysical education				Z	1
14TED CI	reating Electronic Documents				Z	2
Basic skills for creating and	presenting student theses. Individual exercises focus on creating and formatting texts,	equations, charts	, tables, pre	sentations a	nd entire doc	uments in an
office suite.						
02UFEC In	troduction to Elementary Particle Physics				Z	2
The course provides an eas	sily accessible introduction to elementary particle physics. Development, methods, goals	s and perspective	s of the sub	ject are pres	sented.	
18ZALG Ba	asics of Algorithmization			Z	.,ZK	4
This course is devoted to se	elected algorithms and methods for algorithm design. This course intruduces selected m	nethods for the de	termination	of the algor	ithm complex	ity.
16ZBAF1 FU	Indamentals of Human Biology, Anatomy and Physiology 1		lumora Mol		.,∠K tion Coll ovel	4 mitopio
their regulation General bu	ms, non-cellular and cellular organisms, prokaryonic and eukaryonic cell. Molecular and man anatomy Basics of medical terminology. Overview of tissues. Skeleton, Muscle and	tomy in general	nymers. Wol Digestive sv	ecular gene	nus. Uen Cycle s physiology F	e, milosis, Respiratory
system and physiology of re	espiration. Excretory and genital tract.	alony in general.	- 19001100 5)		- p 1, 5000y. 1	y
16ZBAF2	undamentals of Human Biology. Anatomy and Physiology 2			7	ZK	4
Heart and physiology of car	diac activity. General anatomy of blood vessels, main arteries of the body, overview of v	veins and physiolo	ogy of blood	, blood clotti	ng. Overview	of nerves.
CNS. Visual system and ph	siology of the visual system. Auditory and vestibular system and physiology of hearing	and balance. Ski	n, endocrine	e glands.		
02ZJFY Fu	undamentals of Nuclear Physics			Z	"ZK	5
This scientific field presents	s formidable challenges both experimentally and theoretically, simply because we are de	ealing with the sub	omicroscopi	c domain, w	here much of	our classical
intuition regarding the beha	viour of objects fails us. The lecture is a basic introduction to very interesting regions of	subatomic physic	s.			

18ZPRO	Basics of Programming	Z	4
This course is intended	mainly for students with little or no experience in programming. It familiarizes the students with the basic concepts in program	nming and with th	e Python
programming language.			

Code of the group: BSPJAZYKYZAP Name of the group: BS P jazyky zap Requirement credits in the group: Requirement courses in the group: Credits in the group: 0

Note on the group:

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
04XAM1	English for Intermediate Students M1 Jana Ková ová	Z	2	0+2	Z	V
04XAM2	English for Intermediate Students M2 Jana Ková ová	Z	2	0+2	L	V
04XAM3	English for Intermediate Students M3 Jana Ková ová	Z	2	0+2	Z	V
04XAP1	English for Advanced Students P1 Jana Ková ová	Z	2	0+2	Z	V
04XAP2	English for Advanced Students P2 Jana Ková ová	Z	2	0+2	L	V
04XAP3	English for Advanced Students P3 Jana Ková ová	Z	2	0+2	Z	V
04XCESZ1	Czech for Foreigners - Beginners 1 Jana Ková ová Jana Ková ová (Gar.)	Z	2	0+2	Z	V
04XCESZ2	Czech for Foreigners - Beginners 2 Jana Ková ová Jana Ková ová (Gar.)	Z	2	0+2	L	V
04XCESZ3	Czech for Foreigners - Beginners 3 Jana Ková ová Jana Ková ová (Gar.)	Z	2	2S	Z	V
04XCESM1	Czech for Foreigners - Intermediate 1 Jana Ková ová Jana Ková ová (Gar.)	Z	2	0+2	Z	V
04XCESM2	Czech for Foreigners - Intermediate 2 Jana Ková ová Jana Ková ová (Gar.)	Z	2	0+2	L	V
04XCESM3	Czech for Foreigners - Intermediate 3 Jana Ková ová Jana Ková ová (Gar.)	Z	2	0+2	Z	V
04XCESP1	Czech for Foreign Students - Advanced 1 Jana Ková ová Jana Ková ová (Gar.)	Z	2	0+2	Z	V
04XCESP2	Czech for Foreigners - Advanced 2 Jana Ková ová Jana Ková ová (Gar.)	Z	2	0+2	L	V
04XCESP3	Czech for Foreigners - Advanced 3 Jana Ková ová Jana Ková ová (Gar.)	Z	2	0+2	Z	V
04XFM1	French for Intermediate Students M1 V ra Šlechtová V ra Šlechtová (Gar.)	Z	2	0+2	Z	V
04XFM2	French for Intermediate Students M2 V ra Šlechtová V ra Šlechtová (Gar.)	Z	2	0+2	L	V
04XFM3	French for Intermediate Students M3 V ra Šlechtová V ra Šlechtová (Gar.)	Z	2	0+2	Z	V
04XFP1	French for Advanced Students P1 V ra Šlechtová V ra Šlechtová (Gar.)	Z	2	0+2	Z	V
04XFP2	French for Advanced Students P2 V ra Šlechtová V ra Šlechtová (Gar.)	Z	2	0+2	L	V
04XFP3	French for Advanded Students P3 V ra Šlechtová V ra Šlechtová (Gar.)	Z	2	0+2	Z	V
04XFZ1	French for Beginners Z1 V ra Šlechtová V ra Šlechtová (Gar.)	Z	2	0+4	L	V
04XFZ2	French for Beginners Z2 V ra Šlechtová V ra Šlechtová (Gar.)	Z	2	0+4	Z	V
04XFZ3	French for Beginners Z3 V ra Šlechtová V ra Šlechtová (Gar.)	Z	2	0+4	L	V
04XFZ4	French for Beginners Z4 V ra Šlechtová V ra Šlechtová (Gar.)	Z	2	0+4	Z	V
04XFZ5	French for Beginners Z5 V ra Šlechtová V ra Šlechtová (Gar.)	Z	2	0+4	L	V
04XNM2	German for Intermediate Students M2 Miloslava echová Miloslava echová (Gar.)	Z	2	0+2	L	V
04XNM1	German for Intermediate Students M1 Miloslava echová Miloslava echová (Gar.)	Z	2	0+2	Z	V
04XNM3	German for Intermediate Students M3 Miloslava echová Miloslava echová (Gar.)	Z	2	0+2	Z	V

04XNP1	German for Advanced Students P1 Miloslava echová Miloslava echová (Gar.)	Z	2	0+2	Z	v
04XNP2	German for Advanced Students P2 Miloslava echová Miloslava echová (Gar.)	Z	2	0+2	L	V
04XNP3	German for Advanced Students P3 Miloslava echová Miloslava echová (Gar.)	Z	2	0+2	Z	V
04XRM1	Russian for Intermediate Students M1 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+2	Z	V
04XRM2	Russian for Intermediate Students M2 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+2	L	V
04XRM3	Russian for Intermediate Students M3 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+2	Z	V
04XRP1	Russian for Advanced Students P1 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+2	Z	V
04XRP2	Russian for Advanced Students P2 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+2	L	V
04XRP3	Russian for Advanced Students P3 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+2	Z	V
04XRZ1	Russian for Beginners Z1 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+4	L	V
04XRZ2	Russian for Beginners Z2 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+4	Z	V
04XRZ3	Russian for Beginners Z3 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+4	L	V
04XRZ4	Russian for Beginners Z4 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+4	Z	V
04XRZ5	Russian for Beginners Z5 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+4	L	V
04XSM1	Spanish for Intermediate Students M1 Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	Z	2	0+2	Z	V
04XSM2	Spanish for Intermediate Students M3 Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	Z	2	0+2	L	V
04XSM3	Spanish for Intermediate Students M3 Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	Z	2	0+2	Z	V
04XSP1	Spanish for Advanced Students P1 Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	Z	2	0+2	Z	V
04XSP2	Spanish for Advanced Students P2 Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	Z	2	0+2	L	V
04XSP3	Spanish for Advanced Students P3 Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	Z	2	0+2	Z	V
04XSZ1	Spanish for Beginners Z1 Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	Z	2	0+4	L	V
04XSZ2	Spanish for Beginners Students Z2 Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	Z	2	0+4	Z	V
04XSZ3	Spanish for Beginners Z3 Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	Z	2	0+4	L	V
04XSZ4	Spanish for Beginners Z4 Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	Z	2	0+4	Z	V
04XSZ5	Spanish for Beginners Z5 Beatriz Vadillo Gonzalo Beatriz Vadillo Gonzalo (Gar.)	Z	2	0+4	L	V
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Characteristics of the	courses of this group of Study Plan: Code=BSPJAZYKYZAP	Name=BS P j	azyky za	<u>р</u>		
04XAM1 Eng	glish for Intermediate Students M1				Z	2
The course is designed for st	tudents who have successfully completed the full secondary school English language	course at least at	the A2 level	of the Com	mon Europea	n Framework
of Reference for Languages	(CEFR). It provides an introduction into English for Specific and Academic Purposes (ESP, EAP), i.e., ir	nto fundame	ntals of voc	abulary and st	tyle typical of
professional oral and written	communication situations. Thus it covers topics related to the student's life and needs	s as well as topics	of subtechr	nical interest	. Attention is a	also paid to
extending the knowledge of a	grammar issues used in EAP.					
	alish for Intermediate Students M2				7	2
	endent to have completed the AM1 course. It develops their skills for work with subtr	chnical toxta fea	ising also ~			functions
and levice literation (50	Dend CAD (a g. definition evidence and describes of the second work with subt	iona) Dart -f th	auroa :'		ine grannidi,	
and lexical items typical of ES	pr and EAP (e.g., deminition, existence and classification of phenomena, object descript	ions). Part of the c	ourse is also	o guided Wri	ing. If necessa	ary, grammar
revision is included.						
04XAM3 En	glish for Intermediate Students M3				Z	2
The course develops the skill	- s that enable students to cope with features typical of professional style. Increasing atte	ntion is paid to de	velopina suł	otechnical vo	cabularv and	independent
understanding of professions	a taxte. Groat amphasis is placed on distinguishing different lovels of formal and inform	nal oral and writte		ation and 4		to Czoch
	a texts. Great emphasis is placed on distinguishing different levels of formal and inform					Le CZech
equivalents. The course also	includes studying abstracts and rules for writing them as well as basic rules for prepa	ring and giving a s	snort preser	ntation on a	cnosen topic i	related to the
student's field.						
04XAP1 En	glish for Advanced Students P1				Z	2
The course is designed for st	tudents who have successfully completed the full secondary school English language	course (at least th	ne B1 level i	of the Comm	ion European	Framework
of Reference for Languages	- CEER) It provides an introduction into English for Specific and Academic Purpases	(ESP FAP) in i	nto the fund	lamentale of	vocabulary f	unctions
arommor and style typical at	the reference of and written communication situations (fundementals of the reference)	(-01, -71), 1.5., 1		iono cront-	doporintions	
grammar, and style typical of	professional oral and written communication situations (fundamentals of terms in ma	mematics and phy	sics, aetinit	ions, graph	uescriptions,	eic). It also
covers protessional oral and v	written communication on topics related to the undergraduate's life and needs. It develop	os skills for free pro	oressional w	riting (writin	g a CV, letter c	or application,

polite request). If necessary, revision of selected grammar topics is included.

04XAP2	English for Advanced Students P2	Z	2
The AP2 course is base	ed on AP1, thus extending the student's skills for working with subtechnical texts, and even with professional texts of chosen	branches of scien	nce. According to
the students' needs it c	oncentrates on chosen grammar topics, but mainly intends to develop understanding of syntactic structures and typical rheto	rical functions (e.	g., various types
of descriptions, and, if p	possible, a case study). Increasing emphasis is placed on the undergraduate's independent work with and reading of linguisti	ically more deman	nding materials.
paragraph structure, lin	student s subtechnical vocabulary, and includes fundamental notions of chosen branches of science. It is focused on formal king, cohesion and coherence in texts.	writing including th	he sentence and
04XAP3	English for Advanced Students P3	Z	2
The AP3 course is base	d on AP2 and expects the student to work without any guidance with authentic professional materials and to interpret the text.	It includes training	J oral and written
also preparing a project	t on a given or chosen topic and presenting it. The course places emphasis on distinguishing levels of formal and informal lar	ing an abstract) a iguage both in ora	al and written
04XCES71	Czech for Foreigners - Beginners 1	7	2
The course is designed	for students of the English programme. Students will become acquainted with the main characteristics of Czech (phonetic ar	ا 🗠 ا	res) and they will
acquire basic language	and speaking skills. The course focuses on pronunciation exercises, simple social phrases, and oral and written communicat	tion in the most co	ommon everyday
	Czech for Eoreigners - Beginners 2	7	2
The language and com	munication competences acquired in CESZ1 are further developed. Students deepen their knowledge of the declension and	conjugation syste	m and practise
basic communication to	pics. The course covers roughly lessons 3-5 in Czech Express by L. Holá and P. Bo ilová.		
04XCESZ3	Czech for Foreigners - Beginners 3	Z	2
The course further deve	elops the language and communication competences acquired in the XCESZ1 and XCESZ2 courses. The teaching focuses of the second descent descent of the second des	on building up basi	ic vocabulary,
fixing correct pronuncia frequent types of dialog	tion and deepening grammar, teatures through practice, as well as introducing the Czech culture. Students are asked to prod ue. They also practise understanding texts in terms of main ideas or looking for specific details in texts. The course covers rough	uce simple texts a ghly lessons 5-7 ir	n eština expres
04XCESM1	Czech for Foreigners - Intermediate 1	Z	2
The course is focused o	n correct pronunciation, important morphological phenomena, prepositional phrases, and verb forms as well as on extending the	he student's vocab	oulary for various
04XCESM2	Czech for Foreigners - Intermediate 2	7	2
The course develops th	e topics covered in CESM1 and is then focused on more difficult grammar phenomena. It practices writing, speaking, and rea	ا 🗠 🗠 ا ading skills and tra	ains the student
in understanding comm	on abbreviations, abbreviated words, and mathematical terms and formulas.	-	
04XCESM3	Czech for Foreigners - Intermediate 3	Z	2
The last course revises	morphological topics covered earlier and extends the student's knowledge of more difficult language phenomena. It is espec	cially focused on s	stylistics and
lexicology and on devel	oping the student's writing skills.		
04XCESP1	Czech for Foreign Students - Advanced 1		2
It is focused partly on re	evision of standard language structures, but mainly on practising more complex grammatical structures typical of the style of	science Students	are taught the
basics of functional styl	e of engineering and professional communication, both in spoken and written form. The topics include University Studies and	d Student Life. Wri	tten practice
includes communication	n with teachers and faculty administrators.		•
04XCESP2	Czech for Foreigners - Advanced 2	Z	2
This course extends the	e student's knowledge acquired in CESP1 and focuses on difficult language phenomena. It practises working with technical a	and specialist texts	s placing greater
emphasis on individual	work.		
04XCESP3	CZECh for Foreigners - Advanced 3	$ $ $\angle $ $ $	2
student's project. Writin	ig skills necessary for professional communication are trained.	on, and, many, pre	esentation of the
04XFM1	French for Intermediate Students M1	Z	2
French - intermediate F	M The objective of this three-semester course is to improve and further develop communication in the French language in bo	oth written and ora	al form. Students
will be able to communi	cate in social interaction and in academic, scientific and professional environment. They will be able to use the language to tr	ransmit general ar	nd technical
information and to solve	e problems. FM1 The course builds on and further develops linguistic competence acquired at secondary school. It revises, sy	ystemizes and exp	pands language
skills gained in previous	s study. The following topics are covered: University studies in our country and in France, writing of transactional letters, CV, pe Iture and geography. Paris, Topics of specialization; mathematics, physics, Reading technical and popular science texts, work	rsonal statement,	request, answer
	Franch for Intermediate Students M2		2
Course FM2 builds on F	The neuron for interneurate Students wiz	texts. features tvr	pical for technical
and scientific language	(passives, nominalization, word formation). Topics: physics, power engineering, environment, Internet, success of French sci	ence and technole	ogy, French
scientists, artists and a	rchitects. Description of an object, device, shapes, dimensions, material.		
04XFM3	French for Intermediate Students M3	Z	2
The course is focused of	on improvement and further development of linguistic competence acquired during the follow-up courses. Syntactic structures (subordinate and i	nfinitive clauses,
participle structures, co	mpound tenses). Text summaryStudents prepare a written paper which will be delivered in form of an oral presentation in-c	lass. The paper is	linked to the
and one's own knowled	specialisation or to their interest and generally covers a technical /applied science topic. It is not a translation but a creative w	ork complied from	n French articles
	Franch for Advanced Students D1		2
FP advanced course Th	e objective of this three-semester course is to improve and further develop communication in the French language in both w	ritten and oral forr	n. Students will
be able to communicate	e in social interaction and in academic, scientific and work environment. They will be able to use the language to transmit gen	eral and technical	l information and
to solve problems. FP1	The course builds on and further develops linguistic competence acquired at secondary school. Difficult grammar topics are re	epeated and expa	nded: subjonctif,
passé composé-imparfa	ait, pronouns. The following specific topics are covered: University studies in our country and in France, writing of transaction	al letters, CV, pers	sonal statement,
request, answer to an a	dvert, environmental issues, success of French science and technology, chosen topics from French regional culture, Paris. Top	ics of specializatio	on: mathematics,
internet, physics, chem	Istry. Reading of technical and popular science texts, further work with these texts and interpretation.		
With the link to P1 cont	FIGHCHIOF AQVANCEQ STUDENTS M2	∠	2
technical and scientific	communication are stressed (passive voice, nominalization, word formation).	n given topics. re	atures typical U
04XFP3	French for Advanded Students P3	7	2
The course is focused of	n systemization and improvement of acquired linguistic competence, skills and knowledge, and their use for communication in	ı 🗕 – ا ı engineerina envir	ronment. Special
skill - translation of sho	rter texts (both from and into the language). Writing of a paper and making oral presentation in-class. The paper generally co	vers a technical /a	applied science
topic. It is a creative wo	rk compiled from 3 French sources. Preparation of several set topics for oral examination.		

04XFZ1	French for Beginners Z1	Z	2
French for beginners Th	e objective of this 5-level course is to be able to communicate in French orally and in writing in situations of everyday life , in	socializing and in r	professional life.
The course includes Fre	ench for specific / technical communication and reading of popular science and scientific texts. FZ1 The objective is to be able	e to communicate	at elementary
level, actively using the	knowledge of chosen elementary language. The contents is roughly outlined by lessons 1 - 7 of the textbook Pravda - Pravdo	ová, French for be	ginners
(Francouzština pro za á	te ky). It is extended with situations of communication and functions from the textbook Espaces I, lessons 1-4 : introductions	, personal information	tion, asking and
giving the directions, sir	nple instructions and questions. Special attention is paid to pronunciation. Spelling is explained in connection with pronuncial	tion and grammar.	
04XFZ2	French for Beginners Z_2		2
The course is linking up	with FZ1. Elementary linguistic knowledge and communication skills are expanded. The scope is given by lessons 8 - 13 of i	the textbook: Prave	da - Pravdova :
thanking travelling mar	voluonal topics and skills are lifed in from the textbook Espaces (, tesson 1 - 5 (introductions, invitation, welcoming, agreem	unication Specific	topics covered:
How does the machine	work? A few expressions concerning the study Name of University and Faculty	unication. Opecine	topics covered.
	French for Beginners 73	7	2
The course builts upon	F72 Basic linguistic knowledge and skills are developed. The contents is given by lessons 14 - 18 of the textbook: Prayda - F	∣ <u>←</u> ∣ Pravdová: French f	~ or Beginners
Topics functions and sit	utions are complemented from other materials. Stress is put on oral communication in dialogues and on reading, both for in	formation and lou	d as part of
pronunciation practice.	Reading covers short adapted texts of general interest first, and later popular science texts.		a ao part or
04XF74	French for Beginners 74	7	2
The course builds up or	FZ3. Basic linguistic knowledge and skills are further developed. Oral communication and reading skills are practiced. The c	contents is roughly	covered with
lessons 19 - 23 of the te	ktbook French for Beginners, and is expanded with topics and functions from other materials. Reading is developed from the lea	cture notes French	for Engineering
Students of FJFI. The co	purse covers generals and specific topics: health- illness, sport, free time, environment, study, travelling in France, Paris, sho	pping, weather, ur	iversity in our
country and in France, I	now to write CV, application, topics in mathematics, reading physics - mechanics, informatics, internet.		
04XFZ5	French for Beginners Z5	Z	2
All four skills acquired in	FZ4 are further developed, as well as technical language. Students prepare a paper on a chosen popular science topic. The	y present it orally i	n the class. The
general contents is cove	ered by lessons 24 - 26 of the textbook: Pravda-Pravdova, French for Beginners, and is complemented from other materials.	Topics: on physics	from lecture
notes, success of Frenc	h science and technology, information about France. Grammar is systemized and complemented with syntax (subordinate cl	auses, typical con	unctions,
subjunctive clauses, ge	rund, passive.		
04XNM2	German for Intermediate Students M2	Z	2
The course introduces of	ther more complex grammatical structures and their application in communication based on technical texts, such as the relation	n between technol	ogy and society,
the world at the beginning	ng of the 21st century, linguistically more demanding texts on the environment, the language of mathematics, computers and	I car technology et	c. Students
practise reading for infor	mation and reading aloud, and appropriate language for various purposes in oral and written communication. The course system	natically revises of	her grammatical
phenomena important for	or professional discourse (participles, relative clauses).		
04XNM1	German for Intermediate Students M1	Z	2
The objective of the cou	rse is to level off the students' skills in the German language. The course focuses on revision of more difficult phenomena an	d structures (e.g. t	he passive) and
word formation process	es (e.g. importance of verb prefixes). In the lexical part, it covers topics referring to higher education in both the Czech Repul	olic and Germany,	current
environmental issues to	gether with all necessary expressions and phrases, expressions and phrases needed to chemists, mathematicians, physicisi	ts, and the fundam	ientals of II
terminology. It develops	communication on related topics and is almed at correct pronunciation, grammatical correctness and understandability.	7	
04XNM3	German for Intermediate Students M3		2
The course introduces of	ther more complex grammatical structures and their application in communication based on technical texts, such as the relation	n between technol	ogy and society,
the world at the beginning	ng or the 21st century, linguistically more demanding texts on the environment, the language of mathematics, computers and	I car technology et	c. Students
practise reading for infor	mation and reading aloud, and appropriate language for various purposes in oral and written communication. The course system	natically revises of	ner grammatical
	Cormon for Advanced Students P1	7	2
	German for Advanced Students PT		Z
course The course is the	od grammar knowledge, extended general vocabulary, and good communication skins acquired at secondary school to be le	dotail) It rovisos	iginning of the
more difficult grammar s	en locused on working with rechanced and scientific tests and practising reading techniques (skinning, scaling, reading to	practical everyday	
i e telenhoning	מיטנעופי הפנפטאו א וטי שהעפוטאו שהעפוטאויינים אינייט אינייט אינייט אינייט אינייט אינייט אינייט אינייט אינייט אי	practical everyday	communication,
	German for Advanced Students P2	7	2
The course develops the	German for Auvanceu Studerns FZ	ing their general s	
vocabulary range It intro	s sudents shills in working with protessional scientific texts (inderstanding, summarising, note-taking, interpreting) with electeric science and the strength of the strength	d practising formal	
both written and oral (C	Veter of application, interview scholarship, and more complex grammatical structures (i.e., subjunctive, indirect speech)	practising formati	communication,
	German for Advanced Students P3	7	2
The course consists of t	B main parts (general communicative situations, grammar and technical tonics). Students will develop their vocabulary in a vo	ariety of less comr	 non situations
(traffic problems and ca	r accidents, accident report, filling in a form, complaints). Based on presentations and technical and subtechnical texts, the v	ocabulary range ir	fields such as
nuclear power engineer	ing, the environment, computer science, and car technology, will also be extended. Only authentic professional texts are use	d. By means of a r	presentation.
students are trained to p	rocess information gained from their reading of complex and difficult texts and present it to the class in a simplified oral form. The	he course also incl	udes translation
practice to and from Ge	rman.		
04XRM1	Russian for Intermediate Students M1	7	2
The course is designed	for students with previous knowledge of Russian from secondary schools. Students are supposed to know the Russian alphab	bet (both printed ar	nd handwritten).
basic vocabulary for cor	nmunication in everyday situations (introductions, socializing, greetings, shopping for food and objects of everyday need, ask	ing the way and gi	ving directions),
they can use basic gran	nmar structures (verbal and nominal forms, irregular verbs, pronouns). The initial knowledge corresponds to the achievement	level of the RZ2 c	ourse. The
contents and scope of t	he course correspond approximately to the RZ3 course, but for half of the time allotted in the timetable.		
04XRM2	Russian for Intermediate Students M2	Z	2
The course is based on	the RM1 course, its contents and scope correspond roughly to RZ4, however, for half of the time allotted in the timetable.	ı I	
04XRM3			
The course develops the	Russian for Intermediate Students M3	Z	2
	Russian for Intermediate Students M3 e knowledge and skills acquired in RM1 and RM2 and its contents and scope are roughly at the same level as those of RZ5. h	Z owever, for half of	2 the time allotted
in the timetable.	Russian for Intermediate Students M3 knowledge and skills acquired in RM1 and RM2 and its contents and scope are roughly at the same level as those of RZ5, h	Z owever, for half of	2 the time allotted
in the timetable.	Russian for Intermediate Students M3 e knowledge and skills acquired in RM1 and RM2 and its contents and scope are roughly at the same level as those of RZ5, h Russian for Advanced Students P1	Z owever, for half of Z	2 the time allotted 2
in the timetable. 04XRP1 The entrance requirement	Russian for Intermediate Students M3 e knowledge and skills acquired in RM1 and RM2 and its contents and scope are roughly at the same level as those of RZ5, h Russian for Advanced Students P1 ent for the course is to achieve the B1 CEFR level. The objective of the course is revision of standard language structures. pro-	Z owever, for half of Z acticing more diffic	2 the time allotted 2 cult grammar
in the timetable. 04XRP1 The entrance requireme structures, understandir	Russian for Intermediate Students M3 e knowledge and skills acquired in RM1 and RM2 and its contents and scope are roughly at the same level as those of RZ5, h Russian for Advanced Students P1 ent for the course is to achieve the B1 CEFR level. The objective of the course is revision of standard language structures, pra- ing the fundamentals of technical language and training writing skills.	Z owever, for half of Z acticing more diffic	2 the time allotted 2 sult grammar
in the timetable. 04XRP1 The entrance requireme structures, understandir 04XRP2	Russian for Intermediate Students M3 e knowledge and skills acquired in RM1 and RM2 and its contents and scope are roughly at the same level as those of RZ5, h Russian for Advanced Students P1 ent for the course is to achieve the B1 CEFR level. The objective of the course is revision of standard language structures, pra- ing the fundamentals of technical language and training writing skills. Russian for Advanced Students P2	Z owever, for half of Z acticing more diffic	2 the time allotted 2 cult grammar 2
in the timetable. 04XRP1 The entrance requirement structures, understandir 04XRP2 The course is based on	Russian for Intermediate Students M3 a knowledge and skills acquired in RM1 and RM2 and its contents and scope are roughly at the same level as those of RZ5, h Russian for Advanced Students P1 ent for the course is to achieve the B1 CEFR level. The objective of the course is revision of standard language structures, pra- ing the fundamentals of technical language and training writing skills. Russian for Advanced Students P2 RP1. It expands grammatical structures important for understanding technical texts (verbal adjectives, participles, passives,	Z owever, for half of Z acticing more diffic Z verb aspects, spec	2 the time allotted 2 cult grammar 2 cific syntactic

	Russian for Advanced Students P3	7	2
The source is based on Pl	Aussian for Auvanceu Students FS	ing translation)	
The course is based on R	rz and is manny locused on working with technical and scienting texts (reading comprehension, oral and whiter paraphras	51119, translation). The second second	
the second secon	vious knowledge of general anguage at secondary level (isterning, reading, correct communication in everyday situations).	The courses deve	elop and expand
these skills. Further study	is almed at professional and technical skills (reading technical literature according to the students' specialization, oral and	written interpreta	ition). Students
develop their subtechnical	I vocabulary and practice quick and correct communication in professional situations. They will be able to both speak write a	accurately and wit	th confidence on
technical topics.			
04XRZ1 F	Russian for Beginners Z1	Z	2
The course represents the	e first stage of the five-semester programme, its final aim being reading and understanding professional texts written in Russ	sian. Thus it begin	s with mastering
the Russian alphabet (for	both reading and writing skills) and fundamentals of grammar necessary for everyday communication (listening and speak	ing). Students will	be able to read
a short text with marked s	stress, understand its contents and summarize it.	0/	
	Pupping for Pagingers 72	7	2
		ک	
The second semester of th	ne programme is designed to teach skills for basic communication in everyday situations and for reading easy and short st	ibtechnical texts.	Students will be
able to communicate using	g short sentences and appropriate structures, and read aloud with confidence a short text without marked stress. They will	also develop their	r vocabulary and
master further grammatica	al structures. They will have mastered with confidence the Russian alphabet and will be able to use it in writing.		
04XRZ3 F	Russian for Beginners Z3	Z	2
The course is based on R2	Z2 and includes further everyday topics, develops understanding of short compact texts on new subtechnical topics (for train	ning various forms	of reading skills
and listening) and introduc	ces new grammar. Students will be trained to distinguish intonation patterns while listening to spoken language. They will be	e able to respond	so as to be
understood and to expres	see that provide the well be trained on guided writing tasks and pote taking to open of language. They we be		
		7	0
U4XRZ4	Russian for Beginners 24	Z	2
The course is based on RZ	Z3. It improves and expands the knowledge of general language in all four skills (reading and understanding longer texts with	a certain percent	age of unfamiliar
words, oral communication	n in everyday situations, writing longer texts). Students are trained to use grammar structures effectively (e.g., irregular ver	bs, differences in	verb patterns
from Czech, modality, imp	peratives, conditionals). They practice and develop communication skills for everyday situations (food, travelling, free time),	and practice oral	and written
communication on more s	specific topics (environment, addictions, the green movement). They become acquainted with various geographical data (e.	g., Siberia), learn	how to fill in
forms, look up the informa	tion from the timetable, learn about Russian holidays and typical meals.		
	Pupping for Pagingers 75	7	2
		Z	
The course expects the stu	udent to have completed RZ4. It concentrates predominantly on reading skills (working with professional texts, i.e. understar	nding, extracting a	and summarizing
information from a special	lized text) and speaking, and to a certain extent, writing about the professional information obtained by reading the texts. Co	ommunication skil	lls are trained on
everyday topics. Studying	grammar is based on professional and technical texts and only includes items typically used in professional communicatio	n (verbal adjective	es, participles,
passive voice). Students d	develop their technical and economic vocabulary, and are also trained in some professional skills (writing a CV, polite reque	st, etc.)	
04XSM1 S	Spanish for Intermediate Students M1	Z	2
The course is designed for	r students whose competence is at level B1 of CEER i.e. those who studied Spanish in the secondary school. The 3-seme	ster course devel	ops standard
vocabulary and pays atten	tion to further grammer tonics (a.g. perfrasis verbales future imperfecto direct phiert and indirect phiert propulsions page	tive form of the im	operative and
wocabulary and pays aller	iter to further grammar topics (e.g., permasis verbales, future imperietce, affect object and indirect object prohouris, nega		iperative, and
subjunctive), to written and	d of a commission of a given everyday of easy subtechnical topic, for which the students are trained by reading texts of		
04XSM2 S	Spanish for Intermediate Students M3	Z	2
The course develops the s	students' knowledge from the previous course (SM1). Students are gradually acquainted with fundamentals of Spanish for	specific purposes	in order to be
able to work with specializ	zed texts on the Internet.		
04XSM3	Spanish for Intermediate Students M3	7	2
The course books are sup	planearies with additional subtachnical materials, so the students will be gradually acquainted with the peculiarities of acad	emic style They w	vill be competent
ansuch to use the Internet	premented with additional subjectmical materials, so the students will be gradually additional subjectmical materials, so the students will be gradually additional subjectmical materials, so the students will be gradually additional subjectmical materials, and the students are students and the students and the students are students and the students are students and the students are students and the students and the students are students and the students are students and the students are students are students are students are students and the students are s	bort orticles and	
final and of the mean memory	a in spanish and search to information of their specialization of neid of interest. Students will use the information to write s	non anticles and	summanes. The
final part of the programm	le, general Spanish course based on course books, covers presentations and, finally, a written and oral examination.		
04XSP1 S	Spanish for Advanced Students P1	Z	2
Course concentrates on m	nore difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communicati	on. Course prerec	quisites: level B2
of CEFR.			
048502	Spanish for Advanced Students P2	7	2
	and the advanced Spanish as was availed as spanish for appoints purposed taxing. It comprises more grammer and av		an independent
	a part of the auvanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and sy	niax and locuses	on independent
whiten communication.			
04XSP3 S	Spanish for Advanced Students P3	Z	2
Course SP3 is the final pa	art of the advanced Spanish course. It is based on texts chosen by the students according to their future specialization. It is f	ocused on writter	n communication
based on what students w	vill need in their career.		
04XSZ1 S	Spanish for Beginners Z1	7	2
Course S71 is the first sta	open of the five-semester programme of Spanish studies: during the first stage the students will master phonetics and funder	ental grammar st	ructures and will
	ge of the net-sentester programme of operation studies, during the inst stage the students with master profileties and fundam	nd will develop it	
be able to communicate a	it an elementally level on topics of everyday life. They will acquire and extend fundamental vocabularly of general Spanish a		
04XSZ2 S	Spanish for Beginners Students Z2	Z	2
Course SZ2 is based on co	ourse SZ1, and expects students to develop and extend the knowledge and skills acquired so far. Grammar structures and le	exis will be choser	n so as to enable
them to understand short	adapted written texts and speech. Attention is also paid to cultural differences between Spanish-speaking countries and ot	hers such as the	Czech Republic.
Realia of Spanish-speakin	ng countries are also included.		
04XSZ3	Spanish for Beginners 73	7	2
	epication of postinition being and even of the structure of the source source realing (bistory and evidence) of	f the Snanish sna	aking countries
mainly of Spain It pays at	carso della develops instandeni si vocabulari and grannica subulice. Inte course covers reata (instory alla culture) di	a lt includes with	ton and crol
maining of Spann. It pays at	termion to remer gramma topics (pretento penetic), pretento incernindo, pretento impenetico, trie gerund and the impenativi	e, it includes writ	ien anu uidi
communication on a given	I general topic, for which the student is trained by reading texts of listening to them.		
04XSZ4 S	Spanish for Beginners Z4	Z	2
The course is based on co	ourse SZ3. It develops the student's vocabulary and extends the knowledge of the culture and social customs of the Spanic	sh speaking coun	tries, mainly of
Spain. It pays attention to	further grammar topics (perifrasis verbales, futuro imperfecto, direct object and indirect object pronouns, negative form of t	he imperative, an	d subjunctive),
to written and oral commu	unication on a given general or subtechnical topic, for which the student is trained by reading texts or listening to them.		
048975	Spanish for Beginners 75	7	2
	$\sigma_{\rm ext}$		
The course books are sup	premience with additional subtectionical materials, so the students will be gradually acquainted with peculiarities of Spanish	i loi specific purp	uses. In its final
part, the general Spanish	course based on the course book will end with presentations and, finally, a written and oral examination.		

List of courses of this pass:

Code	Name of the course	Completion	Credits
00EKOT	Economy in Technology The course introduces the basics of micro- and macroeconomics.	Z	1
00ETV	Ethics of Science and Technology	Z	1
00MAM1	Essentials of High School Course 1 Students are introduced to mathematical concepts and methods used in the introductory physics course.	Z	1
00MAM2	Essentials of High School Math Course 2 Review of basics of high school mathematics.	Z	1
00PT	Preparatory Week	Z	2
00RET	Rhetoric	Z	1
The course is focu	sed on the acquisition of speech and voice techniques and on the rules of correct pronounciation. The course is also devoted to the	composition of put	lic speech
as well as to its	nonverbal aspects. Stylistics exercises, strategies for coping with stage-fright and a short excursion into the history of rhetoric are an	integral part of the	course.
00UPRA	Introduction to Law	Z	1
00UPSY	Introduction to Psychology	Z	1
01MAT1	Mathematics 1	Z	4
The course is devo	ted to the study of the basics of calculus of one variable. It includes an introduction to differential and integral calculus, with particula practical problems.	r emphasis on app	lications in
01MAT2	Mathematics 2	Z	4
The course, whic	h is the continuation of Mathematics 1, is devoted to the integration techniques, improper Riemann integral, introduction to parametri according to the basics and infinite applications and infinite applications.	c curves (especial	y in polar
	Mothematica 2	774	1
	IVIGUEFITIATICS S The subject summarises the most important notions and theorems related to the study of finite-dimensional vector spaces	Ζ,ΖΝ	4
01MAT4	Mathematics 4	7.7K	4
Linear and non	-linear differential equations of the first order. Linear differential equations of higher order with constant coefficients. Multivariable cal	culus and its applic	ations.
01MATZ1	Mathematics, Examination 1	ZK	2
01MATZ2	Mathematics, Examination 2	ZK	2
01PRSTB	Probability and Statistics B	KZ	4
It is a basic course	of probability theory and mathematical statistics. The probability theory is build gradually beginning with the classical definition and	continuing till the K	olmogorov
definition. The notic	ons as random variable, distribution function of random variable and characteristics of random variable are treated and basic limit the	orems are stated a	and proved.
On the	e basis of this theory the basic methods of mathematical statistics such as estimation of distribution parameters and hypothesis testin	ng are explained.	-
02DEF1	History of Physics 1		2 Dhuning in
Helenistic period,	Archimed. Arabic science, European science in Middle Ages. Renaissance - da Vinci, Giordano Bruno. Copernicus, Kepler, Galileo, H	Sophers, Aristotie. Huygens. The birth	of physics in
	History of Physics 2	7	2
Development of	i classical mechanics after Newton, Bernoulli's, Euler, Lagrange. Historical development of optics, corpuscular and wave approach. E	Lectricity and mag	netism -
electrostatics, galv	anism, electrodynamics and electromagnetism, Faraday and Maxwell. Thermodynamics and its laws, statistical physics, Boltzmann.	The birth of moder	n quantum
and relativistic p	hysics, Planck and Einstein. Discovery of radioaktivity, structure of atom, atomic nucleus, Rutherford and Bohr. The way to nuclear er standard model. The concept of Nature and Universe of today.	nergy, Elementary	particles,
02ELMA	Electricity and Magnetism	Z,ZK	6
Electric charge, Co	ulomb's law, electrostatic field, Gauss' law. Electric dipole, polarization. Conductors and dielectrics. Electric current and circuits, cond	uctivity. Basics of t	he relativity
theory. E	Electrodynamic forces, magnetic field. Magnetic dipole, magnetics. Electromagnetic induction, RLC circuits. Electromagnetic waves, I	Maxwell equations.	
02KF	Quantum Physics	Z,ZK	3
State description	, wave function, postulates of quantum mechanics, Born is statistical interpretation, expectation values, Schrodinger equation, Heise quantization of angular momentum, solution of simple systems, hydrogen atom	nberg uncertainty	principle,
		7	1
Introduction to phy	vsics, physical quantities and units. Kinematics of a particle, basic types of motion and their superposition. Dynamics of a particle, so	∠ Iving equations of	4 motion for
one-dimensional m	otion, motion in a central force field, forces in non-inertial reference frames. Mechanics of a system of particles, two-body problems,	particle collisions.	Mechanics
	of a rigid body, rotation.	-	
02MECHZ	Mechanics - Examination	ZK	2
	The content of the subject is the examination according to the plan of studies.		
02PRAK	Experimental Laboratory	KZ	4
Lecture is intended	primarily for students who study branch Nuclear Chemistry engineering, or practically oriented bachelor's specializations of branch N	Nuclear engineerin	g. But it can
the implementation	of the measurement (acquire of different experimental procedures and routines) will teach writing the records of measurement procedures and routines) will teach writing the records of measurement procedures and routines).	ung work with the	n of results
	At the same time practically extend the knowledge gained in lectures on physics.		
02UFEC	Introduction to Elementary Particle Physics	Z	2
The cours	e provides an easily accessible introduction to elementary particle physics. Development, methods, goals and perspectives of the su	ibject are presente	d
02ZJFY	Fundamentals of Nuclear Physics	Z,ZK	5
This scientific field	intuition regarding the behaviour of objects fails us. The lecture is a basic introduction to very interesting regions of subatomic objects fails us.	n, where much of a	ui ciassical
L	and the regarding the period of experiences and us. The reduction is a page introduction to very interesting regions of Subatomic pi	., 5100.	

04AKS	English Conversation	Z	1
The course will de	evelop the student's communication skills acquired throughout their previous studies. It aims to improve all aspects of oral communication	ation. The student v	vill develop
their vocabulary for	or various communication situations and will master their communication strategy. They will also practise their listening skills in order t	o better follow and	participate
in c	liscussions. The student will be trained to express their ideas clearly and according to current English usage, and become a more cor	fident speaker.	
04XAM1	English for Intermediate Students M1	Z	2
The course is desi	gned for students who have successfully completed the full secondary school English language course at least at the A2 level of the C	ommon European	Framework
of Reference for La	anguages (CEFR). It provides an introduction into English for Specific and Academic Purposes (ESP, EAP), i.e., into fundamentals of	vocabulary and sty	le typical of
professional oral	and written communication situations. Thus it covers topics related to the student's life and needs as well as topics of subtechnical int	erest. Attention is a	also paid to
	extending the knowledge of grammar issues used in EAP.		
04XAM2	English for Intermediate Students M2	Z	2
The AM2 course	expects the student to have completed the AM1 course. It develops their skills for work with subtechnical texts, focusing also more or	specific grammar,	functions,
and lexical items ty	pical of ESP and EAP (e.g., definition, existence and classification of phenomena, object descriptions). Part of the course is also guided	writing. If necessal	ry, grammar
0424M2	English for Intermodicto Studente M2	7	2
	English for Internetiate Students M3	<u> </u>	
understanding o	f professional texts. Great emphasis is placed on distinguishing different levels of formal and informal oral and written communication	and their appropria	ate Czech
equivalents. The c	protectional toxics or out on practice is practice of practice of a stating and form to to be of rolling and an information of a short presentation of presentation of the stating and giving a short presentation o	n a chosen topic re	elated to the
	student's field.		
04ΧΑΜΖΚ	English for Intermediate Students Examination	7K	4
The course cont	ent is the examination as given by the study plan. The examination covers the AM1, AM2, and AM3 courses and consists of two parts	- written (100 min) and oral
(20-	30 min). The student is expected to master the AM syllabus and demonstrate the ability to apply their knowledge gained in the three f	English courses.	,
04XAP1	English for Advanced Students P1	7	2
The course is des	ined for students who have successfully completed the full secondary school Endish language course (at least the B1 level of the C	ommon European	Framework
of Reference for	Languages - CEFR). It provides an introduction into English for Specific and Academic Purposes (ESP, EAP). i.e., into the fundamen	tals of vocabularv.	functions.
grammar, and sty	le typical of professional oral and written communication situations (fundamentals of terms in mathematics and physics, definitions, g	raph descriptions, e	etc). It also
covers professiona	I oral and written communication on topics related to the undergraduate's life and needs. It develops skills for free professional writing (w	riting a CV, letter of	application,
	polite request). If necessary, revision of selected grammar topics is included.		
04XAP2	English for Advanced Students P2	Z	2
The AP2 course is	based on AP1, thus extending the student's skills for working with subtechnical texts, and even with professional texts of chosen bra	nches of science. A	According to
the students' need	Is it concentrates on chosen grammar topics, but mainly intends to develop understanding of syntactic structures and typical rhetorica	I functions (e.g., va	arious types
of descriptions, ar	nd, if possible, a case study). Increasing emphasis is placed on the undergraduate's independent work with and reading of linguistical	ly more demanding	g materials.
The course extend	s the student's subtechnical vocabulary, and includes fundamental notions of chosen branches of science. It is focused on formal writ	ing including the se	entence and
	paragraph structure, linking, cohesion and coherence in texts.		
04XAP3	English for Advanced Students P3	Z	2
The AP3 course is	based on AP2 and expects the student to work without any guidance with authentic professional materials and to interpret the text. It in	cludes training oral	and written
communication sl	ills and functions (e.g., expressing an opinion, agreement, and objections; taking part in discussion, note-taking; summarizing, writing	g an abstract) and,	if possible,
also preparing a	project on a given or chosen topic and presenting it. The course places emphasis on distinguishing levels of formal and informal lang	uage both in oral a	nd written
		71/	
04XAPZK	English for Advanced Students Examination	<u>ZK</u>	4
in the three AD	t is the examination as given by the study plan. The student is supposed to demonstrate mastering the AP3 syllabus and the ability to a	apply their knowled	ge obtained
	Courses. The examination consists of 2 parts - whiten (100 min) and oral (50 min) and includes also oral presentation of a topic from		or study.
	UZECN TOF FOREIGNERS - Intermediate I	L Z	
	sed on contest pronunciation, important morphological prenomena, prepositional prinases, and verb forms as well as on extending the s	ludent s vocabular	y ior various
	Crach for Earnigners Intermediate 2	7	2
	CZECITIOL FOLEIGHES - Intermetable Z	C	tho student
	by the topics covered in CE-Sint and is then hocused on more dimensional prenomena, it practices writing, speaking, and reading in understanding common abbreviations, abbreviated words, and mathematical terms and formulas	iy skills and trains	
04YCESM2	Czach for Earnignore Intermediate 3	7	2
	CZECTION FOR ENGINES - INTERINECTATE S	L C C C C C C C C C C C C C C C C C C C	L istics and
	levises morphological topics covered earlier and extends the student's movieuge of more dimicult language phenomena. It is especial levicology and on developing the student's writing skills	ally locused off styl	istics and
04XCESM7K	Czech for Intermediate Students Examination	71	1
	It is the examination as given by the study plan. The examination consisting of a written and oral part covers all the topics of the CES	M1.2.3 courses an	d can only
	be taken after successful completion of the 3 courses. Detailed information is to be obtained from the teacher	.,_,2 0001000 un	
04XCESP1	Czech for Foreign Students - Advanced 1	7	2
The prerequisite of	the course is very good knowledge of the Czech language. i.e., communicative competences at least at level B2 of the Common Furge	ا بے Dean Framework of	Reference.
It is focused partly	/ on revision of standard language structures, but mainly on practising more complex grammatical structures typical of the style of sci	ence. Students are	taught the
basics of functio	nal style of engineering and professional communication, both in spoken and written form. The topics include University Studies and S	Student Life. Writter	n practice
	includes communication with teachers and faculty administrators.		
04XCESP2	Czech for Foreigners - Advanced 2	Z	2
This course extend	Is the student's knowledge acquired in CESP1 and focuses on difficult language phenomena. It practises working with technical and	specialist texts place	cing greater
	emphasis on individual work.		
04XCESP3	Czech for Foreigners - Advanced 3	Z	2
The course develo	ps the student's knowledge from CESP2. It includes working with authentic specialist materials, their interpretation and presentation,	and, finally, present	tation of the
	student's project. Writing skills necessary for professional communication are trained.		
04XCESPZK	Czech for Foreign Students - Advanced Examination	ZK	4
The course conte	nt is the examination as given by the study plan. The examination consisting of a written and oral part covers all the topics of the CES	P1,2,3 courses an	d can only
	be taken after successful completion of the 3 courses. Detailed information is to be obtained from the teacher.		
04XCESZ1	Czech for Foreigners - Beginners 1	Z	2
The course is desi	gned for students of the English programme. Students will become acquainted with the main characteristics of Czech (phonetic and g	rammar features) a	and they will
acquire basic lang	uage and speaking skills. The course focuses on pronunciation exercises, simple social phrases, and oral and written communication	in the most commo	on everyday
	situations. The course covers roughly lessons 1-3 of eština Express (Czech Express) by L. Holá and P. Bo ilová.		

			1
04XCESZ2	Czech for Foreigners - Beginners 2	Z	2
The language and	communication competences acquired in CESZ1 are further developed. Students deepen their knowledge of the declension and co	, njugation system	and practise
0 0	basic communication topics. The course covers roughly lessons 3-5 in Czech Express by 1. Holá and P. Bo ilová	, , ,	·
04100000		-	0
04XCESZ3	Czech for Foreigners - Beginners 3	Z	2
The course furthe	er develops the language and communication competences acquired in the XCESZ1 and XCESZ2 courses. The teaching focuses on	building up basic	vocabulary,
fixing correct pronu	unciation and deepening grammar, features through practice, as well as introducing the Czech culture. Students are asked to produce	simple texts and	they practise
frequent types of d	ialogue. They also practise understanding texts in terms of main ideas or looking for specific details in texts. The course covers roughly	lessons 5-7 in	eština expres
	One of the Exercise on Device strengther	71/	4
04XCESZZK	Czech for Foreigners Beginners - Examination	∣ ∠ĸ	4
The course conte	ent is the examination as given by the study plan. The examination consisting of a written and oral part covers all the topics of the 04X	CESZ1,2,3 cours	ses and can
	only be taken after successful completion of all three courses. Detailed information is to be obtained from the teacher.		
04XFM1	French for Intermediate Students M1	7	2
French - intermedi	1 enter the objective of this three-semester course is to improve and further develop communication in the French language in both to	vritten and oral fo	rm Students
will be able to co	ommunicate in social interaction and in academic, scientific and professional environment. They will be able to use the language to tra-	ansmit general an	d technical
information and to	solve problems. FM1 The course builds on and further develops linguistic competence acquired at secondary school. It revises, syste	emizes and expar	nds language
skills gained in prev	vious study. The following topics are covered: University studies in our country and in France, writing of transactional letters, CV, person	nal statement, rec	quest, answer
to an advert,	French culture and geography, Paris. Topics of specialization: mathematics, physics. Reading technical and popular science texts, we	ork based on thes	e texts.
	Erench for Intermediate Students M2	7	2
		· · · · ·	
Course FIM2 builds	on FM1. Linguistic structures and competence acquired in previous study are systemized and expanded. Reading popular science tex	ts, teatures typica	il for technical
and scientific lar	nguage (passives, nominalization, word formation). Topics: physics, power engineering, environment, Internet, success of French scie	nce and technolo	ogy, French
	scientists, artists and architects. Description of an object, device, shapes, dimensions, material.		
04XEM3	French for Intermediate Students M3	7	2
The course is feau	and an improvement and further development of linguistic competence acquired during the follow up sources. Suptodic structures (sub	ordinate and infin	
	sed on improvement and there development of inguistic completence acquired during the follow-up courses. Syntactic structures (suc		intive clauses,
participle structul	res, compound tenses). Text summaryStudents prepare a written paper which will be delivered in form of an oral presentation in-cla	ss. The paper is it	inked to the
field of students' fu	tture specialisation or to their interest and generally covers a technical /applied science topic. It is not a translation but a creative work	compiled from Fi	rench articles
and on	e's own knowledge/experienceLonger monologues on topics /situations set for the examination are prepared. Text structure, cohesi	ion and coherenc	e.
04XFM7K	French for Intermediate Students Examination	7K	4
The content is the	e examination as given by the study programme. The whole French programme is ended with an examination covering the contents of	1 FIVIT-FIVIS. THE	examination
	consists of a written and oral part and is organized according to Examination Instructions, a document available on the well	b.	
04XFP1	French for Advanced Students P1	Z	2
FP advanced cour	'se The objective of this three-semester course is to improve and further develop communication in the French language in both writte	en and oral form.	Students will
be able to commun	instein special interaction and in academic, scientific and work environment. They will be able to use the language to transmit general	and technical inf	ormation and
to colve problems	EDI The source hulde an and further develope linguistic armother and work characterized and the source hulde an and further develope linguistic armother and source and the source to be a linguistic armother to be a source to be a linguistic armother to b		officiation and
	FFT The course builds of and further develops iniguistic completence acquired at secondary school. Dimout grainman topics are repe		
passe compose-in	spartait, pronouns. The following specific topics are covered: University studies in our country and in France, writing of transactional le	etters, CV, person	al statement,
request, answer to	an advert, environmental issues, success of French science and technology, chosen topics from French regional culture, Paris. Topics	of specialization.	mathematics
		or opeolanzation.	mathematics,
	internet, physics, chemistry. Reading of technical and popular science texts, further work with these texts and interpretation	n.	mathematics,
04XFP2	internet, physics, chemistry. Reading of technical and popular science texts, further work with these texts and interpretation French for Advanced Students P2	n. Z	2
04XFP2 With the link to P1	internet, physics, chemistry. Reading of technical and popular science texts, further work with these texts and interpretation French for Advanced Students P2 contents, the course further develops language skills. Eccus is put on reading popular science texts and on oral communication on g	n. Z	2
04XFP2 With the link to P1	internet, physics, chemistry. Reading of technical and popular science texts, further work with these texts and interpretation French for Advanced Students P2 contents, the course further develops language skills. Focus is put on reading popular science texts and on oral communication on g technical and scientific asymptication are streaged (appairs) vision particular technical and formation)	n. Z iven topics. Featu	2 Ires typical of
04XFP2 With the link to P1	internet, physics, chemistry. Reading of technical and popular science texts, further work with these texts and interpretation French for Advanced Students P2 contents, the course further develops language skills. Focus is put on reading popular science texts and on oral communication on g technical and scientific communication are stressed (passive voice, nominalization, word formation).	n. Z iven topics. Featu	2 Ires typical of
04XFP2 With the link to P1 04XFP3	internet, physics, chemistry. Reading of technical and popular science texts, further work with these texts and interpretation French for Advanced Students P2 contents, the course further develops language skills. Focus is put on reading popular science texts and on oral communication on g technical and scientific communication are stressed (passive voice, nominalization, word formation). French for Advanded Students P3	iven topics. Featu	2 lires typical of 2
04XFP2 With the link to P1 04XFP3 The course is focus	internet, physics, chemistry. Reading of technical and popular science texts, further work with these texts and interpretation French for Advanced Students P2 contents, the course further develops language skills. Focus is put on reading popular science texts and on oral communication on g technical and scientific communication are stressed (passive voice, nominalization, word formation). French for Advanded Students P3 sed on systemization and improvement of acquired linguistic competence, skills and knowledge, and their use for communication in eng	iven topics. Feature	2 ures typical of 2 ment. Special
04XFP2 With the link to P1 04XFP3 The course is focus skill - translation o	internet, physics, chemistry. Reading of technical and popular science texts, further work with these texts and interpretation French for Advanced Students P2 contents, the course further develops language skills. Focus is put on reading popular science texts and on oral communication on g technical and scientific communication are stressed (passive voice, nominalization, word formation). French for Advanded Students P3 sed on systemization and improvement of acquired linguistic competence, skills and knowledge, and their use for communication in eng f shorter texts (both from and into the language). Writing of a paper and making oral presentation in-class. The paper generally cover	iven topics. Featu Z gineering environi s a technical /app	2 ures typical of 2 ment. Special blied science
04XFP2 With the link to P1 04XFP3 The course is focus skill - translation o	internet, physics, chemistry. Reading of technical and popular science texts, further work with these texts and interpretation French for Advanced Students P2 contents, the course further develops language skills. Focus is put on reading popular science texts and on oral communication on g technical and scientific communication are stressed (passive voice, nominalization, word formation). French for Advanded Students P3 sed on systemization and improvement of acquired linguistic competence, skills and knowledge, and their use for communication in eng of shorter texts (both from and into the language). Writing of a paper and making oral presentation in-class. The paper generally cover topic. It is a creative work compiled from 3 French sources. Prenaration of several set topics for oral examination	iven topics. Featu Z gineering environi s a technical /app	2 ures typical of 2 ment. Special olied science
04XFP2 With the link to P1 04XFP3 The course is focus skill - translation o	internet, physics, chemistry. Reading of technical and popular science texts, further work with these texts and interpretation French for Advanced Students P2 contents, the course further develops language skills. Focus is put on reading popular science texts and on oral communication on g technical and scientific communication are stressed (passive voice, nominalization, word formation). French for Advanded Students P3 sed on systemization and improvement of acquired linguistic competence, skills and knowledge, and their use for communication in eng of shorter texts (both from and into the language). Writing of a paper and making oral presentation in-class. The paper generally cover topic. It is a creative work compiled from 3 French sources. Preparation of several set topics for oral examination.	Z iven topics. Featur Z gineering environi s a technical /app	2 ures typical of 2 ment. Special blied science
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04XFP2 With the link to P1 04XFP3 The course is focus skill - translation o 04XFPZK The whole French	internet, physics, chemistry. Reading of technical and popular science texts, further work with these texts and interpretation French for Advanced Students P2 contents, the course further develops language skills. Focus is put on reading popular science texts and on oral communication on g technical and scientific communication are stressed (passive voice, nominalization, word formation). French for Advanced Students P3 sed on systemization and improvement of acquired linguistic competence, skills and knowledge, and their use for communication in engl of shorter texts (both from and into the language). Writing of a paper and making oral presentation in-class. The paper generally cover topic. It is a creative work compiled from 3 French sources. Preparation of several set topics for oral examination. French for Advanced Students Examination n program is ended with an examination covering the contents of FP1-FP3. The examination consists of a written and/or an oral part at	iven topics. Feature Z gineering environi s a technical /app ZK and is organized a	2 ures typical of 2 ment. Special blied science 4 according to
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04XFP2 With the link to P1 04XFP3 The course is focus skill - translation o 04XFPZK The whole Frenct 04XFZ1	internet, physics, chemistry. Reading of technical and popular science texts, further work with these texts and interpretation French for Advanced Students P2 contents, the course further develops language skills. Focus is put on reading popular science texts and on oral communication on g technical and scientific communication are stressed (passive voice, nominalization, word formation). French for Advanded Students P3 sed on systemization and improvement of acquired linguistic competence, skills and knowledge, and their use for communication in eng of shorter texts (both from and into the language). Writing of a paper and making oral presentation in-class. The paper generally cover topic. It is a creative work compiled from 3 French sources. Preparation of several set topics for oral examination. French for Advanced Students Examination n program is ended with an examination covering the contents of FP1-FP3. The examination consists of a written and/or an oral part a Examination Instructions, a document available on the web. Assessment of the presentation is included into the examination gr French for Beginners Z1 French for Beginners Z1	Image: constraint of the problem in	2 ures typical of 2 ment. Special oblied science 4 according to 2 for a construction
04XFP2 With the link to P1 04XFP3 The course is focus skill - translation o 04XFPZK The whole French 04XFZ1 French for beginne	internet, physics, chemistry. Reading of technical and popular science texts, further work with these texts and interpretation French for Advanced Students P2 contents, the course further develops language skills. Focus is put on reading popular science texts and on oral communication on g technical and scientific communication are stressed (passive voice, nominalization, word formation). French for Advanded Students P3 sed on systemization and improvement of acquired linguistic competence, skills and knowledge, and their use for communication in eng of shorter texts (both from and into the language). Writing of a paper and making oral presentation in-class. The paper generally cover topic. It is a creative work compiled from 3 French sources. Preparation of several set topics for oral examination. French for Advanced Students Examination n program is ended with an examination covering the contents of FP1-FP3. The examination consists of a written and/or an oral part a Examination Instructions, a document available on the web. Assessment of the presentation is included into the examination gr French for Beginners Z1 rs The objective of this 5-level course is to be able to communicate in French orally and in writing in situations of everyday life , in soc	Image: constraint of the problem in	2 ures typical of 2 ment. Special blied science 4 according to 2 ofessional life.
04XFP2 With the link to P1 04XFP3 The course is focus skill - translation o 04XFPZK The whole French 04XFZ1 French for beginne The course includ	internet, physics, chemistry. Reading of technical and popular science texts, further work with these texts and interpretation French for Advanced Students P2 contents, the course further develops language skills. Focus is put on reading popular science texts and on oral communication on g technical and scientific communication are stressed (passive voice, nominalization, word formation). French for Advanded Students P3 sed on systemization and improvement of acquired linguistic competence, skills and knowledge, and their use for communication in eng of shorter texts (both from and into the language). Writing of a paper and making oral presentation in-class. The paper generally cover topic. It is a creative work compiled from 3 French sources. Preparation of several set topics for oral examination. French for Advanced Students Examination n program is ended with an examination covering the contents of FP1-FP3. The examination consists of a written and/or an oral part a Examination Instructions, a document available on the web. Assessment of the presentation is included into the examination gr French for Beginners Z1 rs The objective of this 5-level course is to be able to communicate in French orally and in writing in situations of everyday life , in soc les French for specific / technical communication and reading of popular science and scientific texts. FZ1 The objective is to be able to	iven topics. Featu Z gineering environi s a technical /app ZK and is organized a ading. Z ializing and in pro	2 ures typical of 2 ment. Special blied science 4 according to 2 ofessional life. t elementary
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04XFP2 With the link to P1 04XFP3 The course is focus skill - translation of 04XFPZK The whole French 04XFZ1 French for beginne The course includ level, actively of (Francouzština pro giving the of 04XFZ2 The course is linkit French for Begint thanking, travelling 04XFZ3 The course is linkit French for Begint thanking, travelling 04XFZ3 The course builts Topics, functions 04XFZ4 The course builts Iessons 19 - 23 of tt Students of FJFI. 04XFZ5 All four skills acquil general contents notes, success	Internet, physics, chemistry. Reading of technical and popular science texts, further work with these texts and interpretation French for Advanced Students P2 contents, the course further develops language skills. Focus is put on reading popular science texts and on oral communication or g technical and scientific communication are stressed (passive voice, nominalization, word formation). French for Advanded Students P3 sed on systemization and improvement of acquired linguistic competence, skills and knowledge, and their use for communication in end of shorter texts (both from and into the language). Writing of a paper and making oral presentation in-class. The paper generally cover topic. It is a creative work compiled from 3 French sources. Preparation of several set topics for oral examination. French for Advanced Students Examination regram is ended with an examination covering the contents of FP1-FP3. The examination consist of a written and/or an oral part of Examination Instructions, a document available on the web. Assessment of the presentation is included into the examination are reading of popular science and scientific texts. F21 The objective is to be able to communicate in French orally and in writing in situations of everyday life, in so ce se French for specific / technical communication and reading of popular science and scientific texts. F21 The objective is to be able to communication sign of pronunciano. Spelling is explained in connection with pronu French for Beginners Z2 ng up with F21. Elementary language. The contents is roughly outlined by lessons 1 - 7 of the textbook Pravda - Pravo are at the kills are filled in from the textbook Espaces I, lesson 1 - 5 (introductions, invitation, welcoming, agreeme man of France, food, expression of will, wish, order, prohibition, pleasure). Correct pronunciation is practiced. Stress on oral communic How does the machine work? A few expressions concerning the study. Name of University and Faculty. French for Beginners Z3 upon FZ2. Basic linguistic	Z iven topics. Feature Z gineering environing a technical /app ZK and is organized a ading. Z ializing and in proportion of the properties	2 ures typical of 2 ment. Special blied science 4 according to 2 ofessional life. t elementary beginners n, asking and nmar. 2 - Pravdová : act, apology, pics covered: 2 r Beginners. d as part of 2 covered with r Engineering versity in our 2 the class. The from lecture njunctions,

04XF77K	French for Beginners Examination	7K	3			
The content is the	examination as given by the study plan. The course is terminated with an examination consisting of oral and written part. The examination	ation is ruled by the	e document			
	Instruction for examination. Its content covers the levels FZ1 - FZ5.		dooumont			
	Cormon for Intermediate Students M1	7	2			
04XNM1 German for Intermediate Students M1 Z Z Z						
The objective of the	e course is to rever on the students skins in the German ranguage. The course rocuses on revision of more dimicul phenomena and st	blic and Cormony	assive) and			
word formation	processes (e.g. importance of vero prefixes). In the lexical part, it covers topics referring to higher education in both the Czech Repu	blic and Germany,				
environmental is	sues together with all necessary expressions and phrases, expressions and phrases needed to chemists, mathematicians, physicists	, and the fundamer	itals of 11			
	terminology. It develops communication on related topics and is aimed at correct pronunciation, grammatical correctness and unders	tandability.				
04XNM2	German for Intermediate Students M2	Z	2			
The course introdu	ces other more complex grammatical structures and their application in communication based on technical texts, such as the relation be	tween technology a	and society,			
the world at the l	beginning of the 21st century, linguistically more demanding texts on the environment, the language of mathematics, computers and d	car technology etc.	Students			
practise reading for	r information and reading aloud, and appropriate language for various purposes in oral and written communication. The course systemati	cally revises other g	rammatical			
	phenomena important for professional discourse (participles, relative clauses).					
04XNM3	German for Intermediate Students M3	Z	2			
The course introdu	ces other more complex grammatical structures and their application in communication based on technical texts, such as the relation be	ہ tween technoloay ;	and society.			
the world at the l	beginning of the 21st century, linguistically more demanding texts on the environment, the language of mathematics, computers and o	car technology etc.	Students			
practise reading for	information and reading aloud, and appropriate language for various purposes in oral and written communication. The course systemati	cally revises other c	rammatical			
practice reading for	phenomena important for professional discourse (participles, relative clauses)	sany reflece carel g	, anna a cai			
	Company for Intermediate Students Examination	71/	4			
	German for mermediate Students Examination		4			
The course conten	t is the examination as given by the study plan. The whole German for intermediate Students Course is completed by an examination of	onsisting of two pa	rts - written			
and oral, which co	wer the courses NM1 - NM3. The oral part follows after passing the written part successfully and after obtaining the 04NM3 assessme	ent. More detailed in	nformation			
	is to be obtained from the teacher.	·				
04XNP1	German for Advanced Students P1	Z	2			
This course requi	res good grammar knowledge, extended general vocabulary, and good communication skills acquired at secondary school to be level	led off at the begin	ning of the			
course. The cours	se is then focused on working with technical and scientific texts and practising reading techniques (skimming, scanning, reading for de	etail). It revises and	l develops			
more difficult gramr	nar structures necessary for understanding a subtechnical text (passive voice, participles, participle structures) and it also focuses on prac	ctical everyday com	munication,			
	i.e., telephoning.					
04XNP2	German for Advanced Students P2	7	2			
The course develor	s the students' skills in working with professional scientific texts (understanding summarising note-taking interpreting) while extending	their general and s	ubtechnical			
vocabulary range	t introduces mathematical expressions and texts of nuclear nower engineering. Increasing emphasis is barred on understanding and nr	actising formal com	munication			
h	the state of the s	rect speech)	namoaton,			
	on which and our low, reter of application, interview, soriolarising, and more compres granination structures (i.e., subjancitie, interview, soriolarising), and more compres granination structures (i.e., subjancitie, interview, soriolarising).					
U4XNP3	German for Advanced Students P3	Z	2			
The course consis	sts of 3 main parts (general communicative situations, grammar and technical topics). Students will develop their vocabulary in a varie	ty of less common	situations			
(traffic problems a	nd car accidents, accident report, filling in a form, complaints). Based on presentations and technical and subtechnical texts, the voca	bulary range in fiel	ds such as			
nuclear power er	igineering, the environment, computer science, and car technology, will also be extended. Only authentic professional texts are used.	By means of a pres	sentation,			
students are traine	d to process information gained from their reading of complex and difficult texts and present it to the class in a simplified oral form. The c	ourse also includes	s translation			
	practice to and from German.					
04XNPZK	German for Advanced Students Examination	ZK	4			
The course conter	t is the examination as given by the study plan. The whole German for Advanced Students Course is completed by an examination o	onsisting of two par	rts - written			
and oral, which o	cover the courses NP1 - NP3. The oral part follows after passing the written part successfully and after obtaining the 04NP3 ungraded	assessment. More	e detailed			
	information is to be obtained from the teacher.					
04XRM1	Russian for Intermediate Students M1	7	2			
The course is desir	pred for students with previous knowledge of Russian from secondary schools. Students are supposed to know the Russian alphabet (both printed and h	andwritten)			
hasic vocabulary fo	gree to students win previous introduces on russian non secondary schools, orderins are supposed to introduce a spinal aprilater (the way and giving	diractions)			
basic vocabulary ic	in communication in every day studions (introductions, socializing, greenings, shopping to rood and objects or every day need, asking	and way and giving				
they can use ba	sic grammar structures (verbal and nominal norms, inegular verbs, pronouris). The initial knowledge corresponds to the achievement i		uise. The			
	contents and scope of the course correspond approximately to the R23 course, but for hair of the time allotted in the timetab	le.				
04XRM2	Russian for Intermediate Students M2	Z	2			
-	The course is based on the RM1 course, its contents and scope correspond roughly to RZ4, however, for half of the time allotted in the	e timetable.				
04XRM3	Russian for Intermediate Students M3	Z	2			
The course develop	, ps the knowledge and skills acquired in RM1 and RM2 and its contents and scope are roughly at the same level as those of RZ5, howe	ver, for half of the t	ime allotted			
	in the timetable.					
04XRM7K	Russian for Intermediate Students Examination	7K	4			
The course conter	is the examination as given by the study plan. The course is completed by taking a written and oral examination testing the knowled	de and skills acqui	red in RM1			
- RM3 Stud	and an examination a group of the easy plant the easier of earlier of a successful written examination. Students are given inst	ructions by the tear	her			
	ends are engine to the oral examination only are a propisor from and a decession which examination. Order to are given inst		0			
U4XRP1	Russian for Advanced Students PT	Z	2			
I ne entrance req	jurement for the course is to achieve the BTCEFR level. The objective of the course is revision of standard language structures, prac	ticing more difficult	grammar			
	structures, understanding the fundamentals of technical language and training writing skills.	r				
04XRP2	Russian for Advanced Students P2	Z	2			
The course is bas	sed on RP1. It expands grammatical structures important for understanding technical texts (verbal adjectives, participles, passives, ve	rb aspects, specific	c syntactic			
	structures). Stress is put on independent oral and written communication.					
04XRP3	Russian for Advanced Students P3	Z	2			
The course is bas	ed on RP2 and is mainly focused on working with technical and scientific texts (reading comprehension, oral and written paraphrasing	J, translation). The	RP1 - RP3			
courses require ao	od previous knowledge of general language at secondary level (listening, reading, correct communication in everydav situations). The	courses develop a	and expand			
these skills. Further study is aimed at professional and technical skills (reading technical literature according to the students' specialization, oral and written interpretation). Students						
develop their subtechnical vocabulary and practice quick and correct communication in professional situations. They will be able to both speak write accurately and with confidence on						
	technical topics.					
04YRD7K	Russian for Advanced Students Examination	76	1			
	Travario of UNCHING LATIN LATING CONTRACTOR IN TRANSITION TO TRAVENING UNDER A CONTRACTOR AND THE CONTRACTOR OF TO CONTRACTOR OF TO CONTRACTOR OF TO CONTRAC	 and skills accuri	red in RD1			
- RP2 Qtur	lents are eligible for the oral examination only after a prior pass in RP3 and a successful written examination. Students are given instr	uctions by the teac	her			
- KF 5. 3100	איז	uotiona by the teac	noi.			

04XRZ1	Russian for Beginners Z1	Z	2	
The course represe	ents the first stage of the five-semester programme, its final aim being reading and understanding professional texts written in Russian	1. Thus it begins wit	h mastering	
the Russian alphabet (for both reading and writing skills) and fundamentals of grammar necessary for everyday communication (listening and speaking). Students will be able to read				
	a short text with marked stress, understand its contents and summarize it.			
04XRZ2	Russian for Beginners Z2	Z	2	
The second semes	ster of the programme is designed to teach skills for basic communication in everyday situations and for reading easy and short subte	echnical texts. Stud	lents will be	
able to communica	te using short sentences and appropriate structures, and read aloud with confidence a short text without marked stress. They will also	o develop their voc	abulary and	
	master further grammatical structures. They will have mastered with confidence the Russian alphabet and will be able to use it in	writing.		
04XRZ3	Russian for Beginners Z3	Z	2	
The course is base	d on RZ2 and includes further everyday topics, develops understanding of short compact texts on new subtechnical topics (for training	various forms of re	eading skills	
and listening) an	d introduces new grammar. Students will be trained to distinguish intonation patterns while listening to spoken language. They will be	able to respond so	o as to be	
	understood, and to express their opinion. Writing skills will be trained on guided writing tasks and note-taking.			
04XRZ4	Russian for Beginners Z4	Z	2	
The course is base	d on RZ3. It improves and expands the knowledge of general language in all four skills (reading and understanding longer texts with a c	ertain percentage	of unfamiliar	
words, oral comm	nunication in everyday situations, writing longer texts). Students are trained to use grammar structures effectively (e.g., irregular verbs	s, differences in ver	b patterns	
from Czech, mo	dality, imperatives, conditionals). They practice and develop communication skills for everyday situations (food, travelling, free time), a	and practice oral ar	nd written	
communication c	n more specific topics (environment, addictions, the green movement). They become acquainted with various geographical data (e.g.	., Siberia), learn ho	ow to fill in	
	forms, look up the information from the timetable, learn about Russian holidays and typical meals.			
04XRZ5	Russian for Beginners Z5	Z	2	
The course expects	the student to have completed RZ4. It concentrates predominantly on reading skills (working with professional texts, i.e. understanding	ig, extracting and s	ummarizing	
information from a	specialized text) and speaking, and to a certain extent, writing about the professional information obtained by reading the texts. Comr	nunication skills ar	e trained on	
everyday topics. S	Studying grammar is based on professional and technical texts and only includes items typically used in professional communication ((verbal adjectives,	participles,	
passiv	ve voice). Students develop their technical and economic vocabulary, and are also trained in some professional skills (writing a CV, po	olite request, etc.)		
04XRZZK	Russian for Beginners Examination	ZK	3	
The course conter	t is the examination as given by the study plan. The course is completed by taking a written and oral examination testing the knowled	ge and skills acqu	ired in RZ1	
- RZ5. Stud	ents are eligible for the oral examination only after a prior pass in RZ5 and a successful written examination. Students are given instr	uctions by the tead	cher.	
04XSM1	Spanish for Intermediate Students M1	Z	2	
The course is des	signed for students whose competence is at level B1 of CEFR, i.e. those who studied Spanish in the secondary school. The 3-semest	ter course develop	s standard	
vocabulary and p	ays attention to further grammar topics (e.g., perifrasis verbales, futuro imperfecto, direct object and indirect object pronouns, negativ	e form of the impe	rative, and	
subjunctive), to written and oral communication on a given everyday or easy subtechnical topic, for which the students are trained by reading tex	kts or listening to th	iem.	
04XSM2	Spanish for Intermediate Students M3	Z	2	
The course develo	ps the students' knowledge from the previous course (SM1). Students are gradually acquainted with fundamentals of Spanish for sp	ecific purposes in	order to be	
	able to work with specialized texts on the Internet.			
04XSM3	Spanish for Intermediate Students M3	Z	2	
The course books a	are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academi	່ ic style. They will be	e competent	
enough to use the	Internet in Spanish and search for information of their specialization or field of interest. Students will use the information to write sho	rt articles and sum	maries. The	
	final part of the programme, general Spanish course based on course books, covers presentations and, finally, a written and oral ex	amination.		
04XSMZK	Spanish for Intermediate Students Examination	ZK	4	
The course content	is the examination as given by the study plan. SMZK examination consists of two parts - written and oral; to be eligible for the written parts - written and oral; to be eligible for the written parts - written and oral; to be eligible for the written parts - written and oral; to be eligible for the written parts - written and oral; to be eligible for the written parts - written and oral; to be eligible for the written parts - written and oral; to be eligible for the written parts - written and oral; to be eligible for the written parts - written and oral; to be eligible for the written parts - written and oral; to be eligible for the written parts - written and oral; to be eligible for the written parts	art, students will ha	ve obtained	
	non-graded assessment for course SM3.Oral examination follows the written part.			
04XSP1	Spanish for Advanced Students P1	Z	2	
Course concentrate	es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication.	Course prerequisit	tes: level B2	
	of CEFR.			
04XSP2	Spanish for Advanced Students P2	Z	2	
Course SP2 is the	second part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and synta	x and focuses on ir	ndependent	
	written communication.			
04XSP3	Spanish for Advanced Students P3	Z	2	
Course SP3 is the	final part of the advanced Spanish course. It is based on texts chosen by the students according to their future specialization. It is focu	used on written con	nmunication	
	based on what students will need in their career.			
04XSPZK	Spanish for Advanced Students Examination	ZK	4	
The course conten	is the examination as given by the study plan. Examination SPZK consists of two parts, namely oral and written. The prerequisite for a	admission to oral pa	art is having	
	passed the written test. Examination content is based on syllabi of courses SP1, SP2, and SP3 or on an individual study plan of the	e student.		
04XSZ1	Spanish for Beginners Z1	Z	2	
Course SZ1 is the	first stage of the five-semester programme of Spanish studies; during the first stage the students will master phonetics and fundament	tal grammar structu	ires and will	
be able to	communicate at an elementary level on topics of everyday life. They will acquire and extend fundamental vocabulary of general Span	ish and will develo	p it.	
04XSZ2	Spanish for Beginners Students Z2	Z	2	
Course SZ2 is base	ed on course SZ1, and expects students to develop and extend the knowledge and skills acquired so far. Grammar structures and lexis	will be chosen so	as to enable	
them to understand	d short adapted written texts and speech. Attention is also paid to cultural differences between Spanish-speaking countries and other	s such as the Czec	ch Republic.	
	Realia of Spanish-speaking countries are also included.			
04XSZ3	Spanish for Beginners Z3	Z	2	
The course is base	d on course SZ2, and develops the student's vocabulary and grammar structure. The course covers realia (history and culture) of the	e Spanish-speakin	g countries,	
mainly of Spain.	It pays attention to further grammar topics (pretérito perfecto, pretérito indefinido, pretérito imperfecto, the gerund and the imperative). It includes writter	n and oral	
	communication on a given general topic, for which the student is trained by reading texts or listening to them.			
04XSZ4	Spanish for Beginners Z4	Z	2	
The course is bas	ed on course SZ3. It develops the student's vocabulary and extends the knowledge of the culture and social customs of the Spanish	speaking countries	s, mainly of	
Spain. It pays atte	ntion to further grammar topics (perifrasis verbales, futuro imperfecto, direct object and indirect object pronouns, negative form of the	imperative, and su	ubjunctive),	
	to written and oral communication on a given general or subtechnical topic, for which the student is trained by reading texts or listeni	ng to them.		
04XSZ5	Spanish for Beginners Z5	Z	2	
The course books	are supplemented with additional subtechnical materials, so the students will be gradually acquainted with peculiarities of Spanish for	r specific purposes	s. In its final	
	part, the general Spanish course based on the course book will end with presentations and, finally, a written and oral examina	ition.		

04XSZZK	Spanish for Beginners Examination	ZK	3	
The course conte	in tis the examination as given by the study plan. Examination consists of two parts - written and oral. Student can register for oral ex	amination only if he	e/she has	
	passed the written examination test.			
12NMEA	Numerical Methods for Scientists and Engineers	K7	3	
There are explained	the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology Me	thods for solution o	of tasks verv	
important for physi	icists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated computed	ional environment	MATLAB is	
used as a	demonstration tool. The seminars are held in computer laboratory and PASCAL is used as a principle programming language and N	1ATLAB is also use	d.	
	Creating Electronic Documents	7	2	
Basic skills for crea	Uncertaing Linearing December 2010 and the second	<u>~</u> ns and entire docu	∠ ments in an	
Dasic Skills IUI Clea	ding and presenting student theses, individual exercises locus on creating and formating texts, equations, triarts, tables, presentatio			
		7	F	
	Analytical chemistry in Analytical chemistry in		C	
Introduction, metr	loos of analytical chemistry, scheme of analytical procedures. Sampling and preparation of Hample. Precipitation reactions, solubility	product, factores i	ntiuencing	
solubility. Gravim	erry. Statistical evaluation of results. Precipitation titrations, titration curve, endpoint indication. Complex-formation reactions, stability	constant, factors in	ifiuencing	
stability of complex	es. Chelatometric titrations, titration curve, endpoint indication. Qualitative analysis or cations and anions, application of precipitation an	a complex-formatic	on reactions	
for separation and	Identification of ions. Acto-base reactions, actos, basis, actority function, saits, hydrolysis of saits, bullers, acto-base indicators. Acto-b	ase titrations, titrat	ion curves,	
	detrimination of strong and weak actors, bases and saits. Acto-base reactions in honaqueous solvents.		_	
15ANALY2	Analytical Chemistry 2	Z,ZK	5	
Analyt	cká chemie 2 navazuje na p edm t Analytická chemie 1. Kurz je zam en na instrumentální metody analytické chemie a zpracování	výsledk analýzy.		
15ANCH1		Z,ZK	5	
15ANCH2	Inorganic Chemistry 2	Z,ZK	5	
The first part of cou	rse is devoted to systematical chemistry of elements. The properties of representative elements, transition elements and chemistry of	of coordination com	pounds are	
characterised. Sele	cted chapters in the second part of course deal with catalysis, organometallic compounds and chemistry of solid state. The role of meta	l ions in biological e	environment	
	is discussed at the end of course.	-		
15ANP	Practical Training in Inorganic Chemistry	Z	4	
Basic practical co	purse dealing with synthesis and characterization of inorganic compounds. Students get practical training in syntheses of inorganic co	mpounds by acid-	base and	
	oxidation-reduction reactions, complex formation reactions and reactions in melt.	, ,		
15ΔΡΙΔ	Laboratory Training in Analytical Chemistry	7	4	
First part of labora	prove exercises is oriented to qualitative analysis of cations and anions using wet chemistry procedures. Quantitative determination of	f analyte based up	on various	
	itration procedures follows. In the last part of exercises students become acquisited with basic instrumental methods of chemical	analysis		
	and all proceedings for the rest part of control and part of control and the rest of the r	7	Б	
ISBECHI	Background recearch and require of recearch		5	
4500000	Background research and results of research	7	40	
15BPCH2	Bachelor Thesis 2		10	
	Background research and results of research			
15CHEM	Analytical Calculations and Chemometry Principals	ZK	2	
Lecture deals with	basic principles of chemometry including errors in classical and instrumental analysis, probability theory, propagation of errors, basi	c data distributions	, one- and	
two-tailed significa	nce testing, hypothesis testing, least squares regression and correlation, calibration and fitting methods, non-parametric testing, sem	ninar part consists	of equation	
solving, titratio	n stoichiometry of redox, acid-base, complex and precipitation reactions, gravimetric stoichiometry. pH calculations, calculations in p	otentiometry, could	ometry,	
	spectrophotometry and separation methods, solving of complex forming equilibria.	,		
15DEIZ	Practical Exercises in Detection of Ionizing Radiation	KZ	3	
This laboratory exe	rcise is a practical introduction to fundamental principles of detection of ionizing radiation (IR), interaction of IR with matter, and functio	nality and settings	of particular	
	types of detectors and detection systems.			
15DIZ	Detection of Ionizing Radiation	ZK	2	
The first part of the	course deals with the definitions, properties, and application of the detectors of ionising radiation (IR). In the second part, a detailed	overview of the ga	s detectors,	
scintillation detect	tors, detectors for high energy IR, semiconductor detectors, and integrating solid state detectors is given. The last part of the course	reviews the princip	les of the	
	statistical treatment of data, and limits of detection.			
15EXK1	Excursion 1	7	1	
	The excursion aims at mediating the students the acquaintance with various radiochemical and radiation methods used in orac	rtice.		
15ECHN1	Physical Chemistry 1	7.7%	5	
The introductive pa	I in the inducted to the receptibilities of the thermodynamic systems and thermodynamic properties of ideal and real appendix thermodynamics	$ 2,21 \rangle$	irst socond	
and third law of the	In subvised the reception of the intermotynamic systems and intermotynamic properties on decarate rear gases, react chapters a method wasnic, phase and chapters and their applications. Last but not least attention is devoted also to the thermodynamic phase and chapters and the second s	ns as well as to the	elementals	
	of nonenullibrium thermodynamics		cicinicitais	
	Bhysical Chamistry 2	774	Б	
	Chamiata 2 tagunas on thermodynamics of collision particularly an electricity 2	$ \Sigma, \Sigma \cap $	the lecture	
	Chemistry 2 locuses on thermodynamics of solutions, particularly on feecurities, basics of collocal chemistry extend the theory of so			
15INSN1	Instrumental Methods 1	<u></u>	3	
Overv	view of selected modern instrumental methods of research and analysis, theoretical fundamentals, instrumental technique, utilization	and application.		
15JACH1	Nuclear Chemistry 1	Z,ZK	3	
Concept and histo	ory of nuclear chemistry and radiochemistry, nuclear entities, nuclear reactions, natural and artificial radioactivity. Kinetics of nuclear i	reactions, laws of r	adioactive	
deo	cay. Energetics of nuclear reactions, mass and energy balance of nuclei and energy of alpha, beta decay, gamma deexcitation in nuc	lear reactions.		
15JACH2	Nuclear Chemistry 2	Z,ZK	4	
The following topics	s are discussed in detail in the course: Nuclear reactions yield, reaction cross section, excitation function. Fission reaction, spontaneo	us fission. Chemis	try of atoms	
formed in a nu	clear reaction, local temperature, atomic recoil and recoil energy, recoil of atom bound in a molecule, hot atom chemistry, retention, S	Szilard Chalmers re	eaction.	
15LABT	Practical Training in Laboratory Technique	Z	3	
This course covers	basic laboratory training and is designed for students of "Chemistry in Science", "Teaching of Chemistry", and "Biology". The course	puts the laboratory	experience	
of the students gained at secondary school to an equal level and gets them ready for all following laboratory trainings. After absolving of the course, the students have the basic skills				
including handling the most frequently used laboratory equipments (pH-meter, UV-Vis spectrophotometer, vacuum rotary evaporator) and have the necessary information about safety				
rules as well as about writing laboratory diaries. The training is organized in blocks of four hours a week. The students work in groups of two according to a firm schedule so that each				
group absolve the complete set of (all) 10 exercises during semester. In the exercises, measurements of properties of unknown samples, basic synthetic and purification operations				
	and basic methods of analyses are involved.			
15MZD	Measurement and Data Handling	Z,ZK	3	
Characteristics of	of statistical distribution functions (one-dimensional data), hypotesis testing, analysis of variance (ANOVA), correlation analysis, regre	ssion, statistical ar	nalysis of	
	multidimensional data; chemometrics; testing of analytical methods; numerical methods and computers in data processing	1		

15OCH	General Chemistry	Z.ZK	6
General chemist	y, classification of substances, concentrations, chemical reactions and equations, stoichiometric calculations, atoms and molecules,	chemical bond, the	states of
matter, chemical the	ermodynamics, first law of thermodynamics, thermochemistry, second law of thermodynamics, entropy, Gibbs energy, phase and chemi	cal equilibria, elect	ochemistry,
	pH, reaction kinetics, kinetic equation, Arrhenius' equation.		
15ORCA1	Organic chemistry 1	Z	2
Structure of organ	ic compounds, properties of covalent bond, reactions on covalent bonds. Nomenclature of organic compounds (main chain, group, lo	cants, prefixes and	suffixes).
Spatial structures of	of organic compounds, double bond isomers, chirality, enantiomers and diastereomeric compounds. Configuration and conformation, i additionated and part aside and because Researces, compatibility, cleasification of substituents, resulting of advantation and conformation, i	relationships. Lewis	s structures,
carbanes radicals	adity, hard and soft acids and bases. Resonance, aromaticity, classification of substituents, reactivity of polycyclic arenes. Intermedial	tes: carbocations, o	arbanions,
	compounds of sulfur. nitrogen, phosphorus, silicon, other elements and carbonyl compounds chemistry.		is, organic
15ORCA2	Organic chemistry 2	7 7K	6
Introduction to the	second group of organic compounds, carboxylic acids and their derivatives, heterocyclic compounds, important natural compounds,	industrial organic of	compounds
	and pharmaceuticals - industrial and natural. Introduction to the metods of structural analysis.	.	
15PINS	Laboratory Practice in Instrumental Methods	KZ	2
	Practical training of students in the use of selected modern instrumental methods and techniques for determination of required pa	rameters	
15POCHA	Organic Chemistry Practical	Z	4
The basic practice	es of organic chemistry have the task to teach students the basics of laboratory techniques and methodology of work in the organic la	aboratory. Syntheti	tasks are
chosen so that the	students are acquainted with basic chemical operations, and to obtain information on the preparation and properties of organic comp	pounds. Students t	hus have to
	supplement the theoretical knowledge from the lectures of organic chemistry.		
15POLE	Theory of Electromagnetic Field and Waves	Z,ZK	4
The course compris	ses of three parts: the first part contains selected passages of the theory of the electromagnetic field, the second part is dedicated to the	he wave motion and	d the optics,
	and the third part is the introduction to the atomic physics.	_	_
15PRFCH	Practical Exercises in Physical Chemistry		5
Principles of fundar	mental physico-chemical phenomena are demonstrated in ten exercises. Basic thermodynamic, kinetic and electrochemical characteric	stics, as equilibriun	n constants,
spectrophotometry	r capacity etc., are determinated. Required data are obtained by means of chemical analysis (e.g. titration, extraction) and by common	instrumental metho	athematical
	, polarography, polentionetry, conductometry, electrolysis, viscosimetry. Emphasis is given on appropriate interpretation of measure and statistical evaluation		alliematical
	Practical Exercises in Radiochemical Techniques	K7	2
The exercise is	oriented on the training of students in laboratory praxis and work with open radioactive sources through basic lab operations such a	s pipetting extract	ion and
chrom	atography techniques. Training is also focused on decontamination of surfaces and clean-up of the accident, work behind shielding a	nd in a glove box.	
15SBP	Bachelor Thesis Seminar	Z	1
TI	he aim is to prepare students to write and defend bachelor thesis, including work with information sources and to acquire basic prese	entation skills.	
15TOXA	Toxicology	ZK	2
Overview of basic t	oxicology, containing general and special toxicology, toxicological data, legislation and basic aspects of chemical compounds handling	g. In general toxicol	ogy aspects
of toxicity, metaboli	sm, biodistribution and elimination has been described, as well as toxicological effects, evaluation of toxicity, indexes, and biological t	tests. In special tox	icology part
selected group of	f organic compounds, inorganic compounds, natural compounds and warfare were described from toxicity behaviour. In legislation pa	art REACH, interna	tional and
	national regulation is described.		
15ZBCHA	Fundamentals of Biochemistry	ZK	2
The course covers	the whole field of a general biochemistry as well as basic biochemical pathways. The special attention is paid to make students under	erstand interconne	ction of cell
	processes essential for the life.	71/	0
16EPAIM	Exact Methods in Research of Historic Monuments	∣ ∠K	Z
archaeomagneti	on instone monument investigations, methods of age determination (radiocarbon, thermoluminescence and related methods, further radiation sm), analytical methods for determination of origin and production technologies of artefacts (activation analysis, X-ray fluorescence a	unalysis and other r	nethods)
aronacomagneti	photogrammetry.		nethodoj,
167BAF1	Fundamentals of Human Biology Anatomy and Physiology 1	7 7K	4
Organization of liv	ving systems, non-cellular and cellular organisms, prokaryotic and eukaryotic cell. Molecular and cell biology. Biopolymers. Molecular	genetics. Cell cycl	e, mitosis,
their regulation. G	eneral human anatomy. Basics of medical terminology. Overview of tissues. Skeleton. Muscle anatomy in general. Digestive system a	and its physiology. F	Respiratory
	system and physiology of respiration. Excretory and genital tract.		
16ZBAF2	Fundamentals of Human Biology, Anatomy and Physiology 2	Z,ZK	4
Heart and physiol	ogy of cardiac activity. General anatomy of blood vessels, main arteries of the body, overview of veins and physiology of blood, blood	clotting. Overview	of nerves.
CNS	S. Visual system and physiology of the visual system. Auditory and vestibular system and physiology of hearing and balance. Skin, en	docrine glands.	
16ZDOZ1	Fundamentals of Radiation Dosimetry 1	Z,ZK	4
History, develop	oment, and objectives of dosimetry. Quantities and units used for description of sources, fields, interactions of ionizing radiation, ioniz	ations, energy tran	sfer and
(75550)(absorption. Fundamentals of the effects of ionizing radiation.		
17BPROV	Sate operation of nuclear facilities	KZ	2
47 14 0 5	The aim of the subject is to familiarize students with basic principles of nuclear safety.	71/	
	NUClear Reactors	CK	Z
of reactors into IV c	power issue. Previous evolution of power reactors, nuclear fission reactors, rule assemblies, active core, control systems, safety system reperations. Standard types of nuclear power reactors; concept, description, layout, previous evolution, world share, perspectives. Pres	ns, containment. C	tors (PW/R)
Western-type	PWR (Westinghouse KWU Framatom) VVFR-type reactors. Temelin nuclear power plant Boiling water reactors. Heavy water react	tors fast breeder re	actors
high-temperature	gas cooled reactors. Second nuclear era. reactors of generation III (EPR, AP-1000, VVER 1200). Reactors of generation IV: GIF and	INPRO initiatives.	Evaluation
and	selection of proposed systems. Six selected concepts. ICRP scenarios of word evolution, hydrogen power, role of nuclear power in lo	ong-term outlook	
18ZALG	Basics of Algorithmization	Z,ZK	4
This course is	devoted to selected algorithms and methods for algorithm design. This course intruduces selected methods for the determination of	the algorithm com	olexity.
18ZPRO	Basics of Programming	Z	4
This course is i	ntended mainly for students with little or no experience in programming. It familiarizes the students with the basic concepts in program	mming and with the	Python
	programming language.		
TV-1	Physical Education	Z	1
TV-2	Physical Education	Z	1
TV-3	Physical education	Z	1
TV-4	Physical education	Z	1
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