Study plan

Name of study plan: Aplikovaná algebra a analýza

Faculty/Institute/Others: Department: Branch of study guaranteed by the department: Welcome page Garantor of the study branch: Program of study: Applied Algebra and Analysis 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: BSPAAA1 Name of the group: BS P_AAAB 1st year Requirement credits in the group: Requirement courses in the group: In this group you have to complete at least 12 courses Credits in the group: 0 Note on the group:

Note on the g					,	
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.)					
01DIM1	Discrete Mathematics 1 Edita Pelantová, Zuzana Masáková, Lubomíra Dvo áková Lubomíra Dvo áková Zuzana Masáková (Gar.)	Z	2	2P+0C	Z	Ρ
01DIM2	Discrete Mathematics 2 Edita Pelantová, Zuzana Masáková Zuzana Masáková (Gar.)	Z	2	2P+0C	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
01LAL	Linear Algebra 1 Lubomíra Dvo áková, Petr Ambrož Lubomíra Dvo áková Lubomíra Dvo áková (Gar.)	Z	2	2P+2C		Ρ
01LALZ	Linear Algebra 1, exam Lubomíra Dvo áková, Petr Ambrož Lubomíra Dvo áková Lubomíra Dvo áková (Gar.)	ZK	2	0P+0C		Ρ
01LAL2	Linear Algebra 2 Lubomíra Dvo áková, Petr Ambrož Lubomíra Dvo áková Lubomíra Dvo áková (Gar.)	Z,ZK	4	2P+2C		Ρ
01MAN	Calculus 1 Edita Pelantová, Pavel Strachota, Miroslav Kolá Pavel Strachota Pavel Strachota (Gar.)	Z	4	4+4		Ρ
01MANZ	Calculus 1, exam Edita Pelantová, Pavel Strachota, Miroslav Kolá Pavel Strachota Pavel Strachota (Gar.)	ZK	4	0P+0C		Ρ
01MAN2	Calculus 2 Edita Pelantová, Miroslav Kolá, Maksym Dreval Edita Pelantová Maksym Dreval (Gar.)	Z,ZK	8	4P+4C		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
00PT	Preparatory Week Petr Ambrož, Milan Krbálek Petr Ambrož Petr Ambrož (Gar.)	Z	2	týden	Z	Р

Characteristics of the courses of this group of Study Plan: Code=BSPAAA1 Name=BS P_AAAB 1st year

01DIM1	Discrete Mathematics 1	Z	2
	to elementary number theory and applications. It includes individual problem solving.		
01DIM2	Discrete Mathematics 2	Z	2
The seminar is devoted	to recurrence relations. It includes individual problem solving.		
02ELMA	Electricity and Magnetism	Z,ZK	6
Electric charge, Coulorr	b's law, electrostatic field, Gauss' law. Electric dipole, polarization. Conductors and dielectrics. Electric current and circuits, co	onductivity. Basics	s of the relativity
theory. Electrodynamic	forces, magnetic field. Magnetic dipole, magnetics. Electromagnetic induction, RLC circuits. Electromagnetic waves, Maxwell	equations.	
01LAL	Linear Algebra 1	Z	2
1. Vector space. 2. Linea	ar dependence and independence. 3. Basis and dimension. 4. Subspaces of vector spaces. 5. Linear mappings. 6. Matrices o	f linear mappings	7. Frobenius
theorem.			
01LALZ	Linear Algebra 1, exam	ZK	2
01LAL2	Linear Algebra 2	Z,ZK	4
Outline: 1. Inverse matri	x and operator. 2. Permutation and determinant. 3. Spectral theory (eigenvalue, eigenvector, diagonalization). 4. Hermitian an	d quadratic forms	. 5. Scalar
product and orthogonal	ity. 6. Metric geometry. 7. Riesz theorem and adjoint operator. Outline of the exercises: 1. Methods for calculation of inverse m	atrices. 2. Method	ls of calculation
of determinants. 3. Calc	ulation of eigenvalues and eigenvectors. 4. Hermitian and quadratic forms. Canonical form. 5. Scalar product and orthogonali	ty. Calculation of	orthogonal
complements. 6. Geome	etry exercises and examples. 7. Adjoint operators.		
01MAN	Calculus 1	Z	4
Basic calculus (real ana	lysis, functions of one real variable, differential calculus).		
01MANZ	Calculus 1, exam	ZK	4
01MAN2	Calculus 2	Z,ZK	8
1. Continuation of different	ential calculus: Taylor's Polynomials, Taylor's formula 2. Infinite series: criteria of convergence, operations on series, absolute	and conditional of	onvergence 3.
Real and complex powe	r series, the Cauchy-Hadamard theorem, expansion of function into power series, summation of infinite series. 4. Theory of int	tegrals: primitives	definite integral
(Riemann definition), te	chniques of integration and application of integrals, Generalized Riemann integral		
02MECH	Mechanics	Z	4
Introduction to physics,	physical quantities and units. Kinematics of a particle, basic types of motion and their superposition. Dynamics of a particle, s	solving equations	of motion for
one-dimensional motion	n, motion in a central force field, forces in non-inertial reference frames. Mechanics of a system of particles, two-body problem	ns, particle collisio	ns. Mechanics
of a rigid body, rotation.			
02MECHZ	Mechanics - Examination	ZK	2
The content of the subje	ect is the examination according to the plan of studies.		
00PT	Preparatory Week	Z	2

Code of the group: BSPAAA2

Name of the group: BS P_AAAB 2nd year

Requirement credits in the group:

Requirement courses in the group: In this group you have to complete at least 7 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
01ALGE	Algebra Zuzana Masáková Zuzana Masáková Zuzana Masáková (Gar.)	Z,ZK	6	4+1		Р
01DIFR	Differential Equations Michal Beneš Michal Beneš (Gar.)	Z,ZK	4	2P+2C	L	Р
01ANA3	Mathematical Analysis A 3 František Štampach, Radek Fu ík, Mat j Tušek František Štampach František Štampach (Gar.)	Z,ZK	9	4P+4C		Р
01ANA4	Mathematical Analysis A 4 František Štampach František Štampach (Gar.)	Z,ZK	9	4P+4C		Р
01NMA1	Numerical Mathematics 1 Tomáš Oberhuber Tomáš Oberhuber (Gar.)	ZK	4	4+0		Р
02TEF1	Theoretical Physics 1 Petr Novotný Michal Jex Igor Jex (Gar.)	Z,ZK	4	2+2	Z	Р
02TEF2	Theoretical Physics 2 Petr Novotný, Filip Petrásek Josef Schmidt Petr Novotný (Gar.)	Z,ZK	4	2+2	L	Р

Characteristics of the courses of this group of Study Plan: Code=BSPAAA2 Name=BS P_AAAB 2nd year

01ALGE	Algebra	Z,ZK	6			
Firstly, the Peano axiom	Firstly, the Peano axioms are treated in detail. Elements of the set theory cover only: equivalence and subvalence, the Cantorov-Bernstein theorem, the axiom of choice and equiva					
statements, definition o	f ordinals and cardinals. Further standard algebraic structures are addressed: semigroups, monoids, groups, rings, integral d	omains, principal	ideal domains,			
fields, lattices. Independ	lent chapters are devoted to divisibility in integral domains and to finite fields.					
01DIFR	Differential Equations	Z,ZK	4			
The course contains int	roduction in the solution of ordinary differential equations. It contains a survey of equation types solvable analytically, basics	of the existence th	neory, solution of			
linear types of equation	s and introduction in the theory of boundary-value problems.					
01ANA3	Mathematical Analysis A 3	Z,ZK	9			
Function sequences an	d series, introduction to topology and metric spaces, differential calculus of functions of several variables.					
01ANA4	Mathematical Analysis A 4	Z,ZK	9			
Inverse and implicit fun	tions, constrained extrema, measure and integration theory, contour and surface integrals.					

	umerical Mathematics 1			1	ZK	4
he course introduces to r neoretical methods.	umerical methods for solving the basic problems arising from technical and research	problems. The acce	nt is put on	a good und	erstanding of th	ie root of
	heoretical Physics 1				Z,ZK	4
	on to analytical mechanics. The students acquire knowledge of the basic concepts of th	e Lagrange and Har	niltonian fori			approach
	(Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of the				•	
	ystem of constrained mass points, and of a rigid body. Advanced parts of the course of	over differential and	l integral pri	nciples of m	echanics. The	subject is
	of classical theoretical physics (02TEF1, 02TEF2).			-	7 71/	
I	heoretical Physics 2 ns in physics. Mechanics of point mass, rigid body and continuum. The special theory	of rolativity; rolativic	tic mochani		Z,ZK	4
	ssical electrodynamics: Maxwell's equations in the Minkowski space-time, electromag	-				-
approximation.						
Code of the grou	up: BSPAAA3					
-	up: BS P_AAAB 3rd years					
•	edits in the group:					
•		1. ((1	40			
•	urses in the group: In this group you have to comp	plete at leas	t 12 co	urses		
redits in the gr	oup: 0					
lote on the grou	zkoušku z předmětu 01RMAF lze sk	ládat až po slo	ožení vše	ech zkou	ušek z Mate	ematic
J	analýzy a Lineární algebry.					
	Name of the course / Name of the group of courses					
Code	(in case of groups of courses the list of codes of their	Completion	Credits	Scope	Semester	Role
	members)					
	Tutors, authors and guarantors (gar.)					
01BPAA1	Bachelor project 1 Pavel Strachota, Václav K s Pavel Strachota Pavel Strachota (Gar.)	Z	5	0P+5C		Р
01BPAA2	Bachelor project 2	Z	10	0P+10C		Р
	Pavel Strachota Pavel Strachota Pavel Strachota (Gar.)	_	10	01 1100		
D1DPVB	Differential calculus on manifolds Mat j Tušek Mat j Tušek Mat j Tušek (Gar.)	ZK	2	2P+0C		Р
	Functions of Complex Variable	7 71/	0	0.1		
01FKO	Severin Pošta, Pavel Šoví ek Pavel Šoví ek Pavel Šoví ek (Gar.)	Z,ZK	3	2+1		Р
01FANA1	Functional Analysis 1	Z,ZK	5	2P+2C		Р
	Pavel Š oví ek Pavel Š oví ek Pavel Š oví ek (Gar.)	_,	-			
01FAN2	Functional analysis 2 Pavel Š oví ek Pavel Š oví ek (Gar.)	Z,ZK	5	2P+2C		Р
02KM1	Quantum Mechanics 1	Z,ZK	6	4P+2C	Z	Р
	Martin Štefa ák Martin Štefa ák Martin Štefa ák (Gar.)	Ζ,ΖΝ	0	46 +20	2	Р
01MAS	Mathematical Statistics	ZK	3	2+0		Р
	Václav K s Václav K s Václav K s (Gar.)					
D1MIP	Measure and Probability Václav K s, Tomáš Hobza Tomáš Hobza Václav K s (Gar.)	Z,ZK	6	4+2		Р
01RMAF	Equations of Mathematical Physics	Z,ZK	7	4P+2C		Р
	Václav Klika Václav Klika Václav Klika (Gar.)	Ζ,ΖΙ	'	41 +20		Г
01BASE	Bachelor Seminar	Z	1	0P+2S		Р
	Pavel Strachota Pavel Strachota (Gar.)					
-						
		=BSP AAAB	3rd vears	5		
haracteristics of th	e courses of this group of Study Plan: Code=BSPAAA3 Name	=BS P_AAAB	3rd years	6	Z	5
haracteristics of th			3rd years	5	Z	5

Smooth manifold, tange	nt space differential forms, tensors, Riemannian metrics and manifold, covariant derivative, parallel transport, orientation of m	nanifold, iteg	ration	on manifold	and
Stokes theorem.					
01FKO	Functions of Complex Variable	Z,Zk	<	3	

Differential calculus on manifolds

01DPVB

 01FKO
 Functions of Complex Variable
 Z,ZK
 3

 The course starts from outlining the Jordan curve theorem and the Riemann-Stieltjes integral. Then basic results of complex analysis in one variable are explained in detail: the derivative of a complex function and the Cauchy-Riemann equations, holomorphic and analytic functions, the index of a point with respect to a closed curve, Cauchy's integral theorem, Morera's theorem, roots of a holomorphic function, analytic continuation, isolated singularities, the maximum modulus principle, Liouville's theorem, the Cauchy estimates, Laurent series, residue theorem.

ΖK

2

01FANA1	Functional Analysis 1	Z,ZK	5					
01FAN2	Functional analysis 2	Z,ZK	5					
The course aims to pres	The course aims to present selected fundamental results from functional analysis including basic theorems of the theory of Banach spaces, closed operators and their spectrum,							
Hilbert-Schmidt operato	rs, spectral decomposition of bounded self-adjoint operators.							
02KM1	Quantum Mechanics 1	Z,ZK	6					
Abstract: The lecture de	scribes the birth of quantum mechanics and description of one particle and more particles by elements of the Hilbert space as	well as its time ev	/olution. Besides					
that it includes descripti	on of observable quantities by operators in the Hilbert space and calculation of their spectra.							
01MAS	Mathematical Statistics	ZK	3					
The subject is devoted t	The subject is devoted to usage of statistical methods studied in the course of Mathematical statistics. We deal with Fisher information matrix of statistical models, finding unbiased							
estimators with minimal variance, parameter estimation by method of moments and method of maximum likelihood, derivation of critical regions for hypothesis testing using the								
Neyman-Pearson lemm	Neyman-Pearson lemma and likelihood ratio, confidence intervals and non-parametric density estimation.							

	easure and Probability				Z,ZK	6
-	e introduction to Theory of probability on measure-theoretic level for discrete models, co of distributions including multi-dimensional Gaussian distribution and their properties.		-			
	s (Lp, P, a.s., D) and variants of limit theorems are derived (LLN, CLT).		integral ena			1146100 (E,
01RMAF Ed	quations of Mathematical Physics			Z	Z,ZK	7
	s solving integral equations, theory of generalized functions, classification of partial diff (boundary value problem for eliptic PDE, mixed boundary problem for eliptic PDE).	erential equations	, theory of in	tegral trans	formations, a	nd solution of
	achelor Seminar				Z	1
	ar, students familiarize themselves with the general principles of publishing and presen second part is designed as a practical training for the defense of the bachelors degree	-				-
	ed during the work on their projects. Each presentation is followed by a discussion on sci		-			
performance.						
Name of the bloc	ck: Compulsory elective courses					
	of credits of the block: 0					
The role of the b						
Code of the grou	p: BSSPOLVEDY					
•	up: BS - Social Sciences					
-	dits in the group:					
•	urses in the group: In this group you have to compl	ete at leas	t 1 cour	Se		
Credits in the gro				00		
Note on the grou	•	rses is obliga	atory			
	Name of the course / Name of the group of courses					
Code	(in case of groups of courses the list of codes of their	Completion	Crodite	Scono	Semester	Role
Code	members)	Completion	Creuits	Scope	Semester	KOle
	Tutors, authors and guarantors (gar.)					
00EKOT	Economy in Technology Jana Ková ová	Z	1	2+0		PV
00ETV	Ethics of Science and Technology Jakub Hají ek Jana Ková ová Jakub Hají ek (Gar.)	Z	1	0+2	L	PV
00RET	Rhetoric Jana Ková ová Jana Ková ová Beatriz Vadillo Gonzalo (Gar.)	Z	1	0+2		PV
00UPRA	Introduction to Law Martin ech Jana Ková ová Martin ech (Gar.)	Z	1	0+2		PV
00UPSY	Introduction to Psychology	Z	1	0+2		PV
	Jakub Hají ek Jana Ková ová Jakub Hají ek (Gar.)		•	0.2		
Characteristics of th	e courses of this group of Study Plan: Code=BSSPOLVEDY Na	me=BS - Soc	ial Sciene	ces		
	conomy in Technology				Z	1
	basics of micro- and macroeconomics.				7	4
	hics of Science and Technology netoric				Z Z	1
	e acquisition of speech and voice techniques and on the rules of correct pronounciation	on. The course is a	lso devoted	to the com		•
as well as to its nonverbal a	spects. Stylistics exercises, strategies for coping with stage-fright and a short excursion	n into the history of	of rhetoric ar	e an integra	al part of the o	course.
	troduction to Law				Z	1
00UPSY In	troduction to Psychology				Z	1
-	p: BSPJAZYKYZK					
•	up: BS P languages					
Requirement cre	dits in the group:					
Requirement cou	urses in the group: In this group you have to compl	ete at leas	t 2 cour	ses		
Credits in the gro	pup: 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 Jana Ková ová (Gar.)	ZK	4		Z	PV
04XAPZK	English for Advanced Students Examination Slav na Brownová, Darren Copeland Jana Ková ová Darren Copeland (Gar.)	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 t	he examination as given by the study plan. The examination covers the AM1, AM2, and AM3 courses and consists of two pa	rts - written (100 mi	n) and oral
(20-30 min). The stude	nt is expected to master the AM syllabus and demonstrate the ability to apply their knowledge gained in the three English co	urses.	
04XAPZK	English for Advanced Students Examination	ZK	4
The course content is t	he examination as given by the study plan. The student is supposed to demonstrate mastering the AP3 syllabus and the ability	, to apply their know	ledge obtained
in the three AP courses	s. The examination consists of 2 parts - written (100 min) and oral (30 min) and includes also oral presentation of a topic from	n the student's field	of study.
04XCESZZK	Czech for Foreigners Beginners - Examination	ZK	4
The course content is t	he examination as given by the study plan. The examination consisting of a written and oral part covers all the topics of the C	4XCESZ1,2,3 cours	ses and can
	cessful completion of all three courses. Detailed information is to be obtained from the teacher.		
04XCESMZK	Czech for Intermediate Students Examination	ZK	4
	he examination as given by the study plan. The examination consisting of a written and oral part covers all the topics of the C	1	and can only
	ful 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 t	he examination as given by the study plan. The examination consisting of a written and oral part covers all the topics of the C	CESP1,2,3 courses	and can only
be taken after success	ful completion of the 3 courses. Detailed information is to be obtained from the teacher.		
04XFMZK	French for Intermediate Students Examination	ZK	4
-	nination as given by the study programme. The whole French programme is ended with an examination covering the content	1 1	examination
	d oral part and is organized according to Examination Instructions, a document available on the web.		
04XFPZK	French for Advanced Students Examination	ZK	4
	gram is ended with an examination covering the contents of FP1-FP3. The examination consists of a written and/or an oral pa	1 1	•
	ns, a document available on the web. Assessment of the presentation is included into the examination grading.	int and its organized	according to
04XFZZK	French for Beginners Examination	ZK	3
•	nination as given by the study plan. The course is terminated with an examination consisting of oral and written part. The examination consisting of oral and written part.	1 1	•
	tion. Its content covers the levels FZ1 - FZ5.		,
04XNMZK	German for Intermediate Students Examination	ZK	4
-	he examination as given by the study plan. The whole German for Intermediate Students Course is completed by an examination	1 1	•
	he courses NM1 - NM3. The oral part follows after passing the written part successfully and after obtaining the 04NM3 asses	•	
is to be obtained from t			
04XNPZK	German for Advanced Students Examination	ZK	4
-	he examination as given by the study plan. The whole German for Advanced Students Course is completed by an examination	1 1	•
	he courses NP1 - NP3. The oral part follows after passing the written part successfully and after obtaining the 04NP3 ungrac	•	•
	ained from the teacher.		
04XRMZK	Russian for Intermediate Students Examination	ZK	4
•	he examination as given by the study plan. The course is completed by taking a written and oral examination testing the know	1 1	•
	gible for the oral examination only after a prior pass in RM3 and a successful written examination. Students are given instruc-		•
04XRPZK	Russian for Advanced Students Examination	ZK	4
• • • • • • = • •	he examination as given by the study plan. The course is completed by taking a written and oral examination testing the know		•
	gible for the oral examination only after a prior pass in RP3 and a successful written examination. Students are given instruct	-	-
04XRZZK	Russian for Beginners Examination	ZK	3
• • • • • • • • • • • • • • • • • • • •	he examination as given by the study plan. The course is completed by taking a written and oral examination testing the know	I I	-
	gible for the oral examination only after a prior pass in RZ5 and a successful written examination. Students are given instruct	-	
04XSMZK	Spanish for Intermediate Students Examination	ZK	4
	be examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the v	1 1	
	ssessment for course XSM3. Oral examination follows the written part.	witten part, student	
obtained non-graded a			

04XSPZK	Spanish for Advanced Students Examination	ZK	4				
The course content is the	The course content is the examination as given by the study plan. Examination XSPZK consists of two parts, namely oral and written. The prerequisite for admission to oral part is						
having passed the writte	en test. Examination content is based on syllabi of courses XSP1, XSP2, and XSP3 or on an individual study plan of the stuc	lent.					
04XSZZK	Spanish for Beginners Examination	ZK	3				
The course content is the	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 examination only if he/she has						
passed the written exam	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: BSPAAAV Name of the group: BS P_AAAB 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) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
02DEF1	History of Physics 1 Igor Jex Martin Štefa ák Igor Jex (Gar.)	Z	2	2+0	Z	V
02DRG	Differential Equations, Symmetries and Groups Libor Šnobl Martin Štefa ák Libor Šnobl (Gar.)	Z	4	2+2	Z	V
01DIMA3	Discrete Mathematics 3 Lubomíra Dvo áková Lubomíra Dvo áková Lubomíra Dvo áková (Gar.)	ZK	2	2P+0C		V
01GTDR	Geometric Theory of Ordinary Differential Equations Michal Beneš Michal Beneš Michal Beneš (Gar.)	Z	2	0+2	Z	V
01JEPR	Simple Compilers Zden k ulík Zden k ulík Zden k ulík (Gar.)	Z	2	2	L	V
04AKS	English Conversation Jana Ková ová Jana Ková ová (Gar.)	Z	1	0+2	L	V
01LIP	Linear Programming Jan Volec Jan Volec Jan Volec (Gar.)	Z,ZK	3	2+1	Z	V
01MAPR	Markov processes Jan Vybíral Jan Vybíral Jan Vybíral (Gar.)	Z,ZK	4	2+2		V
01MASC	Mathematical Statistics - Seminar Tomáš Hobza Tomáš Hobza Tomáš Hobza (Gar.)	Z	2	0+2		V
00MAM1	Essentials of High School Course 1 David B e Martin Štefa ák	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
15CH1	General Chemistry 1 Ond ej Holas, Petr Distler, Václav uba Petr Distler Petr Distler (Gar.)	Z	3	2+1	Z	V
15CH2	General Chemistry 2 Ond ej Holas, Petr Distler, Václav uba Petr Distler Petr Distler (Gar.)	Z,ZK	3	2+1	L	V
01PGR1	Computer Graphics 1 Pavel Strachota Pavel Strachota Pavel Strachota (Gar.)	Z,ZK	2	1P+1C		V
01PGR2	Computer Graphics 2 Pavel Strachota Pavel Strachota Pavel Strachota (Gar.)	Z,ZK	2	1P+1C		V
01PSR	Principles of Statistical Decision Making Václav K s Václav K s Václav K s (Gar.)	ZK	2	2+0	L	V
18PROP	Practical training in programming Jakub Klinkovský Jakub Klinkovský Jakub Klinkovský (Gar.)	KZ	3	2C	Z	V
01PW	Windows Programming Zden k ulík Zden k ulík Zden k ulík (Gar.)	Z	2	2+0	Z	V
18PRC1	Programming in C++ 1 Miroslav Virius, Vladimír Jarý Miroslav Virius Miroslav Virius (Gar.)	Z	4	2+2	Z	V
18PRC2	Programming in C++ 2 Jakub Klinkovský, Miroslav Virius, Vladimír Jarý Miroslav Virius Miroslav Virius (Gar.)	KZ	4	2+2	L	V
18PMTL	Programming in MATLAB Mat j Pokorný, Quang Van Tran, Jaromír Kukal Quang Van Tran Jaromír Kukal (Gar.)	KZ	4	4C	Z	V
01PSL	LaTeX - Publication Instrument Petr Ambrož Petr Ambrož Petr Ambrož (Gar.)	Z	2	0+2	L	V
01SAM	Seminar of Applied Mathematics Milan Krbálek Milan Krbálek Milan Krbálek (Gar.)	Z	2	0P+2S		V
02SMF	Seminar of Mathematical Physics Martin Štefa ák Ladislav Hlavatý (Gar.)	Z	2	0+2	Z	V

01SSM1	Seminar of Contemporary Mathematics 1 Mat j Tušek Edita Pelantová (Gar.)	Z	2	0+2	Z	V
01SOS1	Software Seminar 1 Zden k ulík Zden k ulík (Gar.)	Z	2	0+2	Z	V
01SOS2	Software Seminar 2 Zden k ulík Zden k ulík (Gar.)	Z	2	0+2	L	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
01TKO	Theory of Codes Edita Pelantová, Jan Volec Edita Pelantová Jan Volec (Gar.)	ZK	2	2P+0C	L	V
01TOP	Topology estmír Burdík estmír Burdík estmír Burdík (Gar.)	ZK	2	2+0	Z	V
14TED	Creating Electronic Documents Aleš Materna, Ji í Martin ík Aleš Materna Aleš Materna (Gar.)	Z	2	26C		V
02UKP1	Introduction to Curves and Surfaces Ladislav Hlavatý Martin Štefa ák Ladislav Hlavatý (Gar.)	Z	2	1P+1C	L	V
02UKP2	Introduction to Curves and Surfaces 2 Ladislav Hlavatý Martin Štefa ák Ladislav Hlavatý (Gar.)	Z	2	1P+1C	Z	V
12UNXAP	Introduction to UNIX Milan Kucha ík Milan Kucha ík Milan Kucha ík (Gar.)	Z	2	1P+1C	L	V
18ZALG	Basics of Algorithmization Miroslav Virius, Vladimír Jarý, Jan Tomsa, Petr Pauš, František Vold ich, František Gašpar, Zuzana Pet í ková Vladimír Jarý Miroslav Virius (Gar.)	Z,ZK	4	2+2	L	v
01ZAOS	Introduction to Operating Systems Zden k ulík Zden k ulík Zden k ulík (Gar.)	Z,ZK	2	2+0	L	V
18ZPRO	Basics of Programming Maksym Dreval, Jakub Klinkovský, Miroslav Virius, Vladimír Jarý, Jan Tomsa, Petr Pauš, František Vold ich, Zuzana Pet í ková, Nichita Vatamaniuc, Miroslav Virius Miroslav Virius (Gar.)	Z	4	4C	Z	V

Characteristics of the courses of this group of Study Plan: Code=BSPAAAV Name=BS P_AAAB Optional courses

02DEF1	History of Physics 1	Z	2
Physics and its place in	the system of sciences. The relationship of man and nature. Natural sciences in ancient Orientand Greece, Greek natural pl	nilosophers, Aristo	otle. Physics in
Helenistic period, Archi	med. Arabic science, European science in Middle Ages. Renaissance - da Vinci, Giordano Bruno. Copernicus, Kepler, Galile	o, Huygens. The b	oirth of physics
as experimental scienc	e. Newton and his work.		
02DRG	Differential Equations, Symmetries and Groups	Z	4
The purpose of the lect	ure is to teach students computation of symmetries of the differential equations.		
01DIMA3	Discrete Mathematics 3	ZK	2
Students get to know p	oblems and methods of their solving from various parts of discrete mathematics. The seminar includes individual problem so	lving of ones owr	choice from the
given literature.			
01GTDR	Geometric Theory of Ordinary Differential Equations	Z	2
The seminar consists of	the qualitative theory of ODEs dealing with the geometric and topological properties of the solution. In this context, we mentic	n suitably formula	ated basic results
of the existence and un	iqueness, continuous dependence on parameters and initial conditions. Main part is devoted to the autonomous systems.		
01JEPR	Simple Compilers	Z	2
Lexical and syntax ana	ysis, code generation, simple optimizations, development environments, reflection.		
04AKS	English Conversation	Z	1
The course will develop	the student's communication skills acquired throughout their previous studies. It aims to improve all aspects of oral commun	ication. The stude	ent will develop
their vocabulary for vari	ous communication situations and will master their communication strategy. They will also practise their listening skills in ord	er to better follow	and participate
in discussions. The stud	tent will be trained to express their ideas clearly and according to current English usage, and become a more confident spea	ker.	
01LIP	Linear Programming	Z,ZK	3
We study special proble	ms about constrained extremal problems for multivariable functions, where the function is linear and the constraints are give	n by linear equati	ons and/or linear
inequalities.			
01MAPR	Markov processes	Z,ZK	4
01MASC	Mathematical Statistics - Seminar	Z	2
The subject is devoted	, to practical use of statistical methods studied in the course Mathematical Statistics 01MAS. The tutorial deals with calculatior	່າ of Fisher informa	ation matrix of
statistical models, findir	ng unbiased estimators with minimal variance, parameter estimation by method of moments and method of maximum likeliho	od, derivation of c	ritical regions for
hypothesis testing using	g the Neyman-Pearson lemma and likelihood ratio, calculation of confidence intervals and non-parametric density estimation.		
00MAM1	Essentials of High School Course 1	Z	1
Students are introduced	t o mathematical concepts and methods used in the introductory physics course.		
00MAM2	Essentials of High School Math Course 2	Z	1
Review of basics of hig		1	1
15CH1	General Chemistry 1	Z	3
	ccepts, quantities and units used in chemistry are introduced in the course General Chemistry I. Their significance and practiv	cal use are illustra	ated by examples
solved in exercises.			
15CH2	General Chemistry 2	Z,ZK	3
The subject is the conti	nuation of the course General chemistry I. The main attention is paid to general principles governing chemical processes. Us		ples, the fact that
the validity of these prir	ciples is not restricted only to chemical processes is documented. The significance and practical use of explained principles	are illustrated by	examples solved
in exercises.			

01PGR1	Computer Graphics 1	Z,ZK	2
	semester "Computer Graphics" course is devoted to the specifics of digital display devices spanning from history up to the sta	1	1
a survey of fundamental	problems in 2D computer graphics is given together with their solutions. Focus is put on mathematical description of problems ar	nd explanation of th	ne corresponding
algorithms using knowle	edge previously obtained in a variety of subjects available at FNSPE. The final part of the course covers the applications of c	omputer graphics	approaches in
	g scientific documents and presentations.		
01PGR2	Computer Graphics 2	Z,ZK	2
	two-semester "Computer Graphics" course begins with a brief introduction to signal theory in the context of aliasing - a phene	-	-
	structured survey of fundamental problems in 3D computer graphics is given together with their solutions, from the descript		
	on mathematical description of problems and explanation of the corresponding algorithms using knowledge previously obtain		
-	n implementation aspect such as data structures design etc. is also a matter of concern. In the last lecture, a number of theo source 3D modeling and rendering software instrument.	relical concepts a	re demonstrated
01PSR	Principles of Statistical Decision Making	ZK	2
	o the statistical techniques for general decision procedures based on optimization of suitable stochastic criterion, their mutua	1	1
properties and applicab		li compansons wit	in respect to their
18PROP	Practical training in programming	KZ	3
	is to understand advanced topics related to programming, code design and software project development. Students will practice the students will practice advanced topics related to programming, code design and software project development.	1	-
-	eal-world examples. Emphasis is put on the review of freely available software tools that can improve the programmers work		
of the final source code		· · · · , · · · ·	5 10 5
01PW	Windows Programming	Z	2
Simple graphical progra	ms for MS Windows. Basic editing controls. File input and output. User defined components, dynamic type identification and	reflection.	I
18PRC1	Programming in C++ 1	Z	4
	ly the C programming language and non-object oriented features of the C++ language.	-	1 -
18PRC2	Programming in C++ 2	KZ	4
	bject oriented programming and othesr advanced constructs in the C+;+ programming language and the Standard Templat	e Library.	I
18PMTL	Programming in MATLAB	KZ	4
	ronment as efficient tool for computation in complex arrays and symbolic variables, namely for linear algebra, mathematic ar	1	algorithmization
and geometric represen			
01PSL	LaTeX - Publication Instrument	Z	2
The course is devoted to	o the basics and facilities of computer typography, particularly to the system LaTeX	1	I
01SAM	Seminar of Applied Mathematics	Z	2
	oustic emission. 2. Machine learning. 3. Traffic flow dynamics. Dynamics of crowd movement. 4. Digital image processing. 5.	Dynamic pricing. 6	6. Statistical
predictions in economic	s, sociology and psychology. 7. Application of random matrix theory.		
02SMF	Seminar of Mathematical Physics	Z	2
	inar is to iluminate mathematical physics by virtue of solved examples. It is supposed that the teachers of the physics depar	tment will present	simple tasks
concerning their scientif	ic activities that could become the topics of the student?s bachelor theses in the next year		
01SSM1	Seminar of Contemporary Mathematics 1	Z	2
This seminar provides a	different approach to those fields of mathematics that are included in curriculum but also to those that are not part of basic	courses of mathe	matics.
01SOS1	Software Seminar 1	Z	2
Java, Java Beans, Asse	mbly language programming for microprocessors Intel 80x86		
01SOS2	Software Seminar 2	Z	2
	+ and Qt. Development of graphical user interface using C and C++ programming languages. Portable applications for Unix	like operating syst	ems, especially
for Linux systems. Porta	ibility to Microsoft Windows.		
TV-1	Physical Education	Z	1
TV-2	Physical Education	Z	1
TV-3	Physical education	Z	1
TV-4	Physical education	Z	1
01TKO	Theory of Codes	ZK	2
	I in error detecting and error correcting codes.		
01TOP	Topology	ZK	2
	e systematization and deepening the knowledge of general topology.		
14TED	Creating Electronic Documents	Z	2
	and presenting student theses. Individual exercises focus on creating and formatting texts, equations, charts, tables, present	-	
office suite.	מות הבשרונות שנתחבות ווושש. וותויות משו באבינושש ווסבש היה הבשנות שות והוות נוות נבאש, בעמווהיה, הומיה, נמשפה, הבשרו	tations and entire	documents in an
02UKP1	Introduction to Curves and Surfaces	Z	2
	s an introduction to the differential geometry of simple manifolds - curves and two-dimensional surfaces. The basic concepts	1	1
-	plained. In the surface theory we introduce first and second fundamental forms and mean and Gaussian curvature. Essential p		
calculated by students.			
02UKP2	Introduction to Curves and Surfaces 2	Z	2
	course 02UKP1. The properties of the first fundamental form are briefly summarized. The concept of the second fundament	1	1
	o curvature. Finally, the usual concepts of Riemann geometry are introduced.		5
12UNXAP	Introduction to UNIX	Z	2
	g systems. Personal computer, workstation and supercomputers. Processor, memory, bus, devices, hard disk, network interfa	-	1
	systems. Operating system UNIX. Basic principles, kernel, kernel services. Documentation. File system, file atributes, workin		
Command interpreter (s	shell) bash and its programming (scripts). Controlling processes, process status, computer load a process priorities. Standard	d tools. Graphical	user interface
X-windows. Computer n	etworks. Local computer networks. Global computer networks. Addresses and protocols TCP/IP. Network configutation of a	computer. Network	k services:
	scp, etc. Network applications		
18ZALG	Basics of Algorithmization	Z,ZK	4
This course is devoted t	o selected algorithms and methods for algorithm design. This course intruduces selected methods for the determination of the	he algorithm comp	-
01ZAOS	Introduction to Operating Systems	Z,ZK	2
Introduction to structure	of operating systems. Processes, thread, memory management. Synchronization of multi-threaded applications. Memory m	apped files.	

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	mming 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 Jana Ková ová (Gar.)	Z	2	0+2	Z	V
04XAM2	English for Intermediate Students M2 Jana Ková ová Jana Ková ová (Gar.)	Z	2	0+2	L	V
04XAM3	English for Intermediate Students M3 Jana Ková ová Jana Ková ová (Gar.)	Z	2	0+2	Z	V
04XAP1	English for Advanced Students P1 Jana Ková ová Darren Copeland (Gar.)	Z	2	0+2	Z	V
04XAP2	English for Advanced Students P2 Darren Copeland Darren Copeland (Gar.)	Z	2	0+2	L	V
04XAP3	English for Advanced Students P3 Jana Ková ová Darren Copeland (Gar.)	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	Z	2	0+2	L	v
04XRM3	Zhanna Isaeva Zhanna Isaeva (Gar.) Russian for Intermediate Students M3	Z	2	0+2	Z	v
04XRP1	Zhanna Isaeva Zhanna Isaeva (Gar.) Russian for Advanced Students P1	Z	2	0+2	Z	v
04XRP2	Zhanna Isaeva Zhanna Isaeva (Gar.) Russian for Advanced Students P2	Z	2	0+2	L	V
04XRP3	Zhanna Isaeva Zhanna Isaeva (Gar.) Russian for Advanced Students P3	Z	2	0+2	Z	V
04XRZ1	Zhanna Isaeva Zhanna Isaeva (Gar.) Russian for Beginners Z1	 Z	2	0+4		v
04XRZ2	Zhanna Isaeva Žhanna Isaeva (Gar.) Russian for Beginners Z2	Z	2	0+4	Z	V
04XRZ3	Zhanna Isaeva Žhanna Isaeva (Gar.) Russian for Beginners Z3	Z	2	-		-
	Zhanna Isaeva Zhanna Isaeva (Gar.) Russian for Beginners Z4			0+4	L	V
04XRZ4	Zhanna Isaeva Zhanna Isaeva (Gar.) Russian for Beginners Z5	Z	2	0+4	Z	V
04XRZ5	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
04XAM1 E The course is designed for	ne courses of this group of Study Plan: Code=BSPJAZYKYZAF inglish for Intermediate Students M1 students who have successfully completed the full secondary school English languag	je course at least at	the A2 leve	l of the Com		
professional oral and writte	es (CEFR). It provides an introduction into English for Specific and Academic Purpose en communication situations. Thus it covers topics related to the student's life and nee					
04XAM2 E	of grammar issues used in EAP. Inglish for Intermediate Students M2 he student to have completed the AM1 course. It develops their skills for work with sut	htechnical taxts for	using also r			2 functions
	ESP and EAP (e.g., definition, existence and classification of phenomena, object descri		-		-	
04XAM3 E The course develops the sl understanding of profession	inglish for Intermediate Students M3 kills that enable students to cope with features typical of professional style. Increasing a nal texts. Great emphasis is placed on distinguishing different levels of formal and info	ormal oral and writte	en communi	cation and th	neir appropria	ate Czech
equivalents. The course als student's field.	so includes studying abstracts and rules for writing them as well as basic rules for pre	paring and giving a	short prese	ntation on a	chosen topic	related to the
The course is designed for	nglish for Advanced Students P1 • students who have successfully completed the full secondary school English languag •s - CEFR). It provides an introduction into English for Specific and Academic Purpose	- ·				
grammar, and style typical covers professional oral an	of professional oral and written communication situations (fundamentals of terms in n d written communication on topics related to the undergraduate's life and needs. It deve y, revision of selected grammar topics is included.	nathematics and ph	ysics, defini	tions, graph	descriptions,	etc). It also

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
	oncentrates on chosen grammar topics, but mainly intends to develop understanding of syntactic structures and typical rheto		• •
	possible, a case study). Increasing emphasis is placed on the undergraduate's independent work with and reading of linguisti	-	-
	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
	d on AP2 and expects the student to work without any guidance with authentic professional materials and to interpret the text.	-	
	nd functions (e.g., expressing an opinion, agreement, and objections; taking part in discussion, note-taking; summarizing, wri t on a given or chosen topic and presenting it. The course places emphasis on distinguishing levels of formal and informal lar		
04XCESZ1	Czech for Foreigners - Beginners 1	Z	2
	for students of the English programme. Students will become acquainted with the main characteristics of Czech (phonetic ar	1 – 1	1
acquire basic language	and speaking skills. The course focuses on pronunciation exercises, simple social phrases, and oral and written communicat	-	
04XCESZ2	covers roughly lessons 1-3 of eština Express (Czech Express) by L. Holá and P. Bo ilová.	Z	2
	munication competences acquired in CESZ1 are further developed. Students deepen their knowledge of the declension and		
	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
	clops the language and communication competences acquired in the XCESZ1 and XCESZ2 courses. The teaching focuses of	• •	
	tion and deepening grammar, features 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 roug	-	
04XCESM1	Czech for Foreigners - Intermediate 1	Z	2
The course is focused o social situations.	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	Z	2
	e topics covered in CESM1 and is then focused on more difficult grammar phenomena. It practices writing, speaking, and rea	1 1	1
in understanding comm	on abbreviations, abbreviated words, and mathematical terms and formulas.	-	
04XCESM3	Czech for Foreigners - Intermediate 3	Z	2
	morphological topics covered earlier and extends the student's knowledge of more difficult language phenomena. It is espec	cially focused on s	stylistics and
	oping the student's writing skills.		
04XCESP1	Czech for Foreign Students - Advanced 1	Z	2
	course is very good knowledge of the Czech language, i.e., communicative competences at least at level B2 of the Common E evision of standard language structures, but mainly on practising more complex grammatical structures typical of the style of		
	e of engineering and professional communication, both in spoken and written form. The topics include University Studies and		
	n with teachers and faculty administrators.		•
04XCESP2	Czech for Foreigners - Advanced 2	Z	2
	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			
04XCESP3	Czech for Foreigners - Advanced 3 e student's knowledge from CESP2. It includes working with authentic specialist materials, their interpretation and presentation	Z	2
	g skills necessary for professional communication are trained.	on, and, many, pre	esentation of the
04XFM1	French for Intermediate Students M1	Z	2
	M The objective of this three-semester course is to improve and further develop communication in the French language in bo	1 1	1
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
	e problems. FM1 The course builds on and further develops linguistic competence acquired at secondary school. It revises, sy	, ,	
° '	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		•
04XFM2	French for Intermediate Students M2	Z	2
	TM1. Linguistic structures and competence acquired in previous study are systemized and expanded. Reading popular science	1 1	
	(passives, nominalization, word formation). Topics: physics, power engineering, environment, Internet, success of French sci		
scientists, artists and a	rchitects. Description of an object, device, shapes, dimensions, material.		
04XFM3	French for Intermediate Students M3	Z	2
	on improvement and further development of linguistic competence acquired during the follow-up courses. Syntactic structures (
	mpound tenses). Text summaryStudents prepare a written paper which will be delivered in form of an oral presentation in-c		
	specialisation or to their interest and generally covers a technical /applied science topic. It is not a translation but a creative w Ige/experienceLonger monologues on topics /situations set for the examination are prepared. Text structure, cohesion and o	-	n French articles
04XFP1	French for Advanced Students P1	Z	2
-	the objective of this three-semester course is to improve and further develop communication in the French language in both w	1 – 1	
	e in social interaction and in academic, scientific and work environment. They will be able to use the language to transmit gen		
	The course builds on and further develops linguistic competence acquired at secondary school. Difficult grammar topics are re		
	ait, pronouns. The following specific topics are covered: University studies in our country and in France, writing of transaction		
	dvert, environmental issues, success of French science and technology, chosen topics from French regional culture, Paris. Top	ics of specializatio	on: mathematics,
	istry. Reading of technical and popular science texts, further work with these texts and interpretation.		
04XFP2	French for Advanced Students P2 ents, the course further develops language skills. Focus is put on reading popular science texts and on oral communication o	Z	2
	communication are stressed (passive voice, nominalization, word formation).	n given topics. re	atures typical U
04XFP3	French for Advanded Students P3	Z	2
	in systemization and improvement of acquired linguistic competence, skills and knowledge, and their use for communication in	I I	1
	rter texts (both from and into the language). Writing of a paper and making oral presentation in-class. The paper generally co		-
	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	he 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.
	ench for specific / technical communication and reading of popular science and scientific texts. FZ1 The objective is to be able		
	knowledge of chosen elementary language. The contents is roughly outlined by lessons 1 - 7 of the textbook Pravda - Pravde		s
	te ky). It is extended with situations of communication and functions from the textbook Espaces I, lessons 1-4 : introductions	-	tion, asking and
0 0	nple instructions and questions. Special attention is paid to pronunciation. Spelling is explained in connection with pronuncial	ion and grammar.	
04XFZ2	French for Beginners Z2	Z	2
	with FZ1. Elementary linguistic knowledge and communication skills are expanded. The scope is given by lessons 8 - 13 of the statistical tables and skills are filled in from the tauthories of the scope 1. 5. (introductions in station under statistical tables).		
•	Additional topics and skills are filled in from the textbook Espaces I, lesson 1 - 5 (introductions, invitation, welcoming, agreem o of France, food, expression of will, wish, order, prohibition, pleasure). Correct pronunciation is practiced. Stress on oral comm	•	
	work? A few expressions concerning the study. Name of University and Faculty.	unication. Opecine	topics covered.
04XFZ3	French for Beginners Z3	Z	2
	FZ2. Basic linguistic knowledge and skills are developed. The contents is given by lessons 14 - 18 of the textbook: Pravda - F		
	tuations are complemented from other materials. Stress is put on oral communication in dialogues and on reading, both for ir		°
• •	Reading covers short adapted texts of general interest first, and later popular science texts.		a ao part or
04XFZ4	French for Beginners Z4	Z	2
-	n FZ3. Basic linguistic knowledge and skills are further developed. Oral communication and reading skills are practiced. The c		
	xtbook French for Beginners, and is expanded with topics and functions from other materials. Reading is developed from the lea		
Students of FJFI. The c	ourse covers generals and specific topics: health- illness, sport, free time, environment, study, travelling in France, Paris, sho	pping, weather, un	iversity in our
country and in France,	how 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 Frence	ch science and technology, information about France. Grammar is systemized and complemented with syntax (subordinate cl	auses, typical conj	unctions,
subjunctive clauses, ge			
04XNM2	German for Intermediate Students M2	Z	2
The course introduces of	other more complex grammatical structures and their application in communication based on technical texts, such as the relation	n between technol	ogy and society,
-	ng of the 21st century, linguistically more demanding texts on the environment, the language of mathematics, computers and		
	mation and reading aloud, and appropriate language for various purposes in oral and written communication. The course system	natically revises ot	her grammatical
	or professional discourse (participles, relative clauses).		
04XNM1	German for Intermediate Students M1	Z	2
	Irse is to level off the students' skills in the German language. The course focuses on revision of more difficult phenomena an		
	es (e.g. importance of verb prefixes). In the lexical part, it covers topics referring to higher education in both the Czech Repul	-	
	gether with all necessary expressions and phrases, expressions and phrases needed to chemists, mathematicians, physicis	is, and the fundam	ientals of II
	communication on related topics and is aimed at correct pronunciation, grammatical correctness and understandability.		
04XNM3	German for Intermediate Students M3	Z	2
	ther more complex grammatical structures and their application in communication based on technical texts, such as the relation		•••
•	ng of the 21st century, linguistically more demanding texts on the environment, the language of mathematics, computers and	0,	
	mation and reading aloud, and appropriate language for various purposes in oral and written communication. The course syster or professional discourse (participles, relative clauses).	natically revises of	ner grammatical
		7	2
04XNP1	German for Advanced Students P1 od grammar knowledge, extended general vocabulary, and good communication skills acquired at secondary school to be le	Z	2 sinning of the
	the focused on working with technical and scientific texts and practising reading techniques (skimming, scanning, reading for		° °
	tructures necessary for understanding a subtechnical text (passive voice, participles, participle structures) and it also focuses on	,	
i.e., telephoning.	מיטנערפי הפניפיזמו א וויי הוועריזמות אין א משנפירווונימו נפגי (ממשר אטנפי, אמי ונטאופי, אמי ונטאופי אינטנערפי) מות המוסט וטנעספי טרי	practical everyday	communication,
04XNP2	German for Advanced Students P2	Z	2
	e students' skills in working with professional scientific texts (understanding, summarising, note-taking, interpreting) while extend		
	budgets skills in working with professional solentific texts (understanding, summarsing, note-taking, interpreting) with extend bduces mathematical expressions and texts of nuclear power engineering. Increasing emphasis is placed on understanding and	0 0	
	V, letter of application, interview, scholarship), and more complex grammatical structures (i.e., subjunctive, indirect speech).	i practising torman	communication,
04XNP3	German for Advanced Students P3	Z	2
	3 main parts (general communicative situations, grammar and technical topics). Students will develop their vocabulary in a va r accidents, accident report, filling in a form, complaints). Based on presentations and technical and subtechnical texts, the v		
· ·	ing, the environment, computer science, and car technology, will also be extended. Only authentic professional texts are use	, ,	
	process information gained from their reading of complex and difficult texts and present it to the class in a simplified oral form. The		
practice to and from Ge			
04XRM1	Russian for Intermediate Students M1	Z	2
	for students with previous knowledge of Russian from secondary schools. Students are supposed to know the Russian alphab	I I	
-	mmunication in everyday situations (introductions, socializing, greetings, shopping for food and objects of everyday need, ask		
	nmar structures (verbal and nominal forms, irregular verbs, pronouns). The initial knowledge corresponds to the achievement	• • •	e 7.
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 RM1 course, its contents and scope correspond roughly to RZ4, however, for half of the time allotted in the timetable.	I	
04XRM3			-
· · · · · · · · · · · · · · · · · · ·		Z	2
The course develops the	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 Z	
The course develops the in the timetable.	Russian for Intermediate Students M3		
	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	owever, for half of	
in the timetable. 04XRP1	Russian for Intermediate Students M3	owever, for half of	the time allotted
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	owever, for half of	the time allotted
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-	owever, for half of	the time allotted
in the timetable. 04XRP1 The entrance requirement structures, understandin 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, pro- ng the fundamentals of technical language and training writing skills.	owever, for half of Z	the time allotted 2 cult grammar 2

04XRP3	Russian for Advanced Students P3	Z	2
	RP2 and is mainly focused on working with technical and scientific texts (reading comprehension, oral and written paraphras	- 1	_
	revious knowledge of general language at secondary level (listening, reading, correct communication in everyday situations).	<u>,</u>	
	dy is aimed at professional and technical skills (reading technical literature according to the students' specialization, oral and	-	
-	cal vocabulary and practice quick and correct communication in professional situations. They will be able to both speak write a	accurately and wit	in confidence on
technical topics.			
04XRZ1	Russian for Beginners Z1	Z	2
The course represents t	he 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	or both reading and writing skills) and fundamentals of grammar necessary for everyday communication (listening and speak	ing). Students will	l be able to read
a short text with marked	I stress, understand its contents and summarize it.		
04XRZ2	Russian for Beginners Z2	7	2
	f the programme is designed to teach skills for basic communication in everyday situations and for reading easy and short su	- 1	_
	ing short sentences and appropriate structures, and read aloud with confidence a short text without marked stress. They will		
		also develop their	vocabulary and
	ical 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 based on	RZ2 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 introd	duces new grammar. Students will be trained to distinguish intonation patterns while listening to spoken language. They will b	e able to respond	so as to be
understood, and to expr	ess their opinion. Writing skills will be trained on guided writing tasks and note-taking.		
04XRZ4	Russian for Beginners Z4	7	2
-	RZ3. It improves and expands the knowledge of general language in all four skills (reading and understanding longer texts with	- 1	_
		-	-
	ion in everyday situations, writing longer texts). Students are trained to use grammar structures effectively (e.g., irregular ver		-
	nperatives, conditionals). They practice and develop communication skills for everyday situations (food, travelling, free time),	•	
	e 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 inforr	nation 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. understar	nding, extracting a	and summarizing
	ialized text) and speaking, and to a certain extent, writing about the professional information obtained by reading the texts. Co	e	•
-	g grammar is based on professional and technical texts and only includes items typically used in professional communicatio		
	s develop their technical and economic vocabulary, and are also trained in some professional skills (writing a CV, polite reque		co, participico,
04XSM1	Spanish for Intermediate Students M1	Z	2
The course is designed	for students whose competence is at level B1 of CEFR, i.e. those who studied Spanish in the secondary school. The 3-seme	ster course devel	ops standard
vocabulary and pays at	ention to further grammar topics (e.g., perífrasis verbales, futuro imperfecto, direct object and indirect object pronouns, nega	tive form of the im	nperative, and
subjunctive), to written a	and oral communication on a given everyday or easy subtechnical topic, for which the students are trained by reading texts o	r listening to them	ı.
04XSM2	Spanish for Intermediate Students M3	Z	2
The course develops th	e students' knowledge from the previous course (SM1). Students are gradually acquainted with fundamentals of Spanish for	specific purposes	s in order to be
	lized texts on the Internet.		
		Z	2
04XSM3	Spanish for Intermediate Students M3	- 1	2
	upplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of acad		
	net in Spanish and search for information of their specialization or field of interest. Students will use the information to write s	hort articles and s	summaries. The
final part of the program	me, general Spanish course based on course books, covers presentations and, finally, a written and oral examination.		
04XSP1	Spanish for Advanced Students P1	Z	2
Course concentrates or	more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication	ion. Course prerec	auisites: level B2
of CEFR.			1
04XSP2	Spanish for Advanced Students P2	Z	2
		I I	
	ond part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and sy	intax and focuses	on independent
written communication.			
04XSP3	Spanish for Advanced Students P3	Z	2
Course XSP3 is the fina	part of the advanced Spanish course. It is based on texts chosen by the students according to their future specialization. It is	locused on writter	n communication
based on what students	will need in their career.		
04XSZ1	Spanish for Beginners Z1	Z	2
		- 1	
	t stage of the five-semester programme of Spanish studies; during the first stage the students will master phonetics and fund	-	
	cate at an elementary level on topics of everyday life. They will acquire and extend fundamental vocabulary of general Spanis	sh and will develop	
04XSZ2	Spanish for Beginners Students Z2	Z	2
Course XSZ2 is based	on course XSZ1, and expects students to develop and extend the knowledge and skills acquired so far. Grammar structures	and lexis will be c	hosen so as to
enable them to understa	and short adapted written texts and speech. Attention is also paid to cultural differences between Spanish-speaking countries	and others such	as the Czech
Republic. Realia of Spa	nish-speaking countries are also included.		
04XSZ3	Spanish for Beginners Z3	Z	2
		I I	
	the foundations established in course XSZ2 and further develops students vocabulary and grammatical competence. It inclu		
	Spanish-speaking countries, with a primary focus on Spain. Particular attention is given to key grammatical structures, includi	- · ·	-
	erfecto, the gerund, and the imperative. The course also focuses on both written and spoken communication on general topic	s. Students are pl	repared for this
	g and listening activities.		
04XSZ4	Spanish for Beginners Z4	Z	2
The course is based on	course XSZ3. It develops the student's vocabulary and extends the knowledge of the culture and social customs of the Spar	hish speaking cou	intries, mainly of
	to further grammar topics (perifrasis verbales, futuro imperfecto, direct object and indirect object pronouns, negative form of t		-
	nunication on a given general or subtechnical topic, for which the student is trained by reading texts or listening to them.	,	//
		Z	2
04XSZ5	Spanish for Beginners Z5	- 1	
	upplemented with additional subtechnical materials, so the students will be gradually acquainted with peculiarities of Spanish	i for specific purp	uses. In its final
part, the general Spanis	sh course based on the course book will end with 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
	sed on the acquisition of speech and voice techniques and on the rules of correct pronounciation. The course is also devoted to th	-	
	onverbal aspects. Stylistics exercises, strategies for coping with stage-fright and a short excursion into the history of rhetoric are a		
00UPRA	Introduction to Law	Z	1
00UPSY	Introduction to Psychology	Z	1
01ALGE	Algebra	Z,ZK	6
	ioms are treated in detail. Elements of the set theory cover only: equivalence and subvalence, the Cantorov-Bernstein theorem, the		d equivaler
statements, definition	on of ordinals and cardinals. Further standard algebraic structures are addressed: semigroups, monoids, groups, rings, integral do fields, lattices. Independent chapters are devoted to divisibility in integral domains and to finite fields.	mains, principal idea	al domains,
01ANA3	Mathematical Analysis A 3	Z,ZK	9
	Function sequences and series, introduction to topology and metric spaces, differential calculus of functions of several variations	ables.	
01ANA4	Mathematical Analysis A 4	Z,ZK	9
	Inverse and implicit functions, constrained extrema, measure and integration theory, contour and surface integrals.	-	
01BASE	Bachelor Seminar	Z	1
	seminar, students familiarize themselves with the general principles of publishing and presenting scientific work and the formal re	-	-
	ty. The second part is designed as a practical training for the defense of the bachelors degree project. The students give oral pres achieved during the work on their projects. Each presentation is followed by a discussion on scientific matters as well as on the poss		
040044	performance.	7	-
01BPAA1	Bachelor project 1 Student's project on the selected topic under the supervision. Supervision and regular checking of the project under prepar	Z ation.	5
01BPAA2	Bachelor project 2 Student's project on the selected topic under the supervision. Supervision and regular checking of the project under prepar	Z Z	10
01DIFR	Differential Equations	Z,ZK	4
-	introduction in the solution of ordinary differential equations. It contains a survey of equation types solvable analytically, basics of linear types of equations and introduction in the theory of boundary-value problems.		, solution o
01DIM1	Discrete Mathematics 1	Z	2
	The seminar is devoted to elementary number theory and applications. It includes individual problem solving.		<u> </u>
01DIM2	Discrete Mathematics 2 The seminar is devoted to recurrence relations. It includes individual problem solving.	Z	2
01DIMA3	Discrete Mathematics 3	ZK	2
	v problems and methods of their solving from various parts of discrete mathematics. The seminar includes individual problem solv given literature.	1	
01DPVB	Differential calculus on manifolds	ZK	2
1	ngent space differential forms, tensors, Riemannian metrics and manifold, covariant derivative, parallel transport, orientation of ma Stokes theorem.	1	nanifold and
01FAN2 The course aims t	Functional analysis 2 o present selected fundamental results from functional analysis including basic theorems of the theory of Banach spaces, closed Hilbert-Schmidt operators, spectral decomposition of bounded self-adjoint operators.	Z,ZK	5 spectrum,
01FANA1	Functional Analysis 1	Z,ZK	5
01FKO	Functions of Complex Variable	Z,ZK	3
	m outlining the Jordan curve theorem and the Riemann-Stieltjes integral. Then basic results of complex analysis in one variable are		-
-	n and the Cauchy-Riemann equations, holomorphic and analytic functions, the index of a point with respect to a closed curve, Cau olomorphic function, analytic continuation, isolated singularities, the maximum modulus principle, Liouville's theorem, the Cauchy e		
010700	theorem.	7	2
	Geometric Theory of Ordinary Differential Equations s of the qualitative theory of ODEs dealing with the geometric and topological properties of the solution. In this context, we mention the aviatance and uniqueness continuous dependence on perspective and initial exactlines. Main part is devoted to the autoexpective	-	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
	the existence and uniqueness, continuous dependence on parameters and initial conditions. Main part is devoted to the autonom		
01JEPR	Simple Compilers	Z	2
	Lexical and syntax analysis, code generation, simple optimizations, development environments, reflection.		
01LAL	Linear Algebra 1	Z	2

01LAL2			
1	Linear Algebra 2	Z,ZK	4
	e matrix and operator. 2. Permutation and determinant. 3. Spectral theory (eigenvalue, eigenvector, diagonalization). 4. Hermitian and	-	
-	onality. 6. Metric geometry. 7. Riesz theorem and adjoint operator. Outline of the exercises: 1. Methods for calculation of inverse matrice		
of determinants.	 Calculation of eigenvalues and eigenvectors. 4. Hermitian and quadratic forms. Canonical form. 5. Scalar product and orthogonality complements. 6. Geometry exercises and examples. 7. Adjoint operators. 	. Calculation of o	orthogonal
01LALZ	Linear Algebra 1, exam	ZK	2
01LIP	Linear Programming	Z,ZK	3
ve study special pro	oblems about constrained extremal problems for multivariable functions, where the function is linear and the constraints are given by inequalities.	linear equations	and/or linea
01MAN	Calculus 1	Z	4
	Basic calculus (real analysis, functions of one real variable, differential calculus).	2	4
01MAN2	Calculus 2	Z,ZK	8
	lifferential calculus: Taylor's Polynomials, Taylor's formula 2. Infinite series: criteria of convergence, operations on series, absolute an		-
	ower series, the Cauchy-Hadamard theorem, expansion of function into power series, summation of infinite series. 4. Theory of integra		
	(Riemann definition), techniques of integration and application of integrals, Generalized Riemann integral		
01MANZ	Calculus 1, exam	ZK	4
01MAPR	Markov processes	Z,ZK	4
01MAS	Mathematical Statistics	ZK	3
1) oted to usage of statistical methods studied in the course of Mathematical statistics. We deal with Fisher information matrix of statistic		-
	ninimal variance, parameter estimation by method of moments and method of maximum likelihood, derivation of critical regions for hy		•
	Neyman-Pearson lemma and likelihood ratio, confidence intervals and non-parametric density estimation.	petricele teeting	uonig nio
01MASC	Mathematical Statistics - Seminar	Z	2
	oted to practical use of statistical methods studied in the course Mathematical Statistics 01MAS. The tutorial deals with calculation of	_	
	nding unbiased estimators with minimal variance, parameter estimation by method of moments and method of maximum likelihood, d		
	pothesis testing using the Neyman-Pearson lemma and likelihood ratio, calculation of confidence intervals and non-parametric densit		-
01MIP	Measure and Probability	Z,ZK	6
he subject is devote	ed to the introduction to Theory of probability on measure-theoretic level for discrete models, continuous distributions and general dist	ributions of rand	om variable
We deal with the e	examples of distributions including multi-dimensional Gaussian distribution and their properties. Further the (non)+integral characteris	tics of random v	ariables (E
	Var,), convergence modes (Lp, P, a.s., D) and variants of limit theorems are derived (LLN, CLT).		
01NMA1	Numerical Mathematics 1	ZK	4
The course introdu	ices to numerical methods for solving the basic problems arising from technical and research problems. The accent is put on a good	understanding o	f the root o
	theoretical methods.		
	Computer Graphics 1		
-	wo-semester "Computer Graphics" course is devoted to the specifics of digital display devices spanning from history up to the state of ntal problems in 2D computer graphics is given together with their solutions. Focus is put on mathematical description of problems and ex		-
The first part of the t a survey of fundame	wo-semester "Computer Graphics" course is devoted to the specifics of digital display devices spanning from history up to the state of	the art technolo planation of the c	gies. Furthe
The first part of the t a survey of fundament algorithms using kr	wo-semester "Computer Graphics" course is devoted to the specifics of digital display devices spanning from history up to the state of ntal problems in 2D computer graphics is given together with their solutions. Focus is put on mathematical description of problems and ex nowledge previously obtained in a variety of subjects available at FNSPE. The final part of the course covers the applications of comp the process of authoring scientific documents and presentations.	the art technolo planation of the c puter graphics ap	gies. Furthe
The first part of the t survey of fundame algorithms using kr 01PGR2	wo-semester "Computer Graphics" course is devoted to the specifics of digital display devices spanning from history up to the state of ntal problems in 2D computer graphics is given together with their solutions. Focus is put on mathematical description of problems and ex nowledge previously obtained in a variety of subjects available at FNSPE. The final part of the course covers the applications of comp	the art technolo planation of the c puter graphics ap Z,ZK	gies. Furthe correspondir oproaches in 2
The first part of the t survey of fundament algorithms using kr 01PGR2 The second part of	wo-semester "Computer Graphics" course is devoted to the specifics of digital display devices spanning from history up to the state of ntal problems in 2D computer graphics is given together with their solutions. Focus is put on mathematical description of problems and ex nowledge previously obtained in a variety of subjects available at FNSPE. The final part of the course covers the applications of comp the process of authoring scientific documents and presentations. Computer Graphics 2	the art technolo planation of the c puter graphics ap Z,ZK enon ubiquitous	gies. Furthe correspondit oproaches i 2 n compute
The first part of the t survey of fundament algorithms using kr 01PGR2 The second part of graphics. Further, a	wo-semester "Computer Graphics" course is devoted to the specifics of digital display devices spanning from history up to the state of ntal problems in 2D computer graphics is given together with their solutions. Focus is put on mathematical description of problems and ex nowledge previously obtained in a variety of subjects available at FNSPE. The final part of the course covers the applications of comp the process of authoring scientific documents and presentations. Computer Graphics 2 if the two-semester "Computer Graphics" course begins with a brief introduction to signal theory in the context of aliasing - a phenom	the art technolo planation of the c puter graphics ar Z,ZK enon ubiquitous of a 3D scene to	gies. Furthe correspondin pproaches i 2 in compute o its realistic
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02DEF1	History of Physics 1	Z	2
	lace in the system of sciences. The relationship of man and nature. Natural sciences in ancient Orientand Greece, Greek natural philo		
Helenistic period	, Archimed. Arabic science, European science in Middle Ages. Renaissance - da Vinci, Giordano Bruno. Copernicus, Kepler, Galileo, I as experimental science. Newton and his work.	Huygens. The birth	of physics
02DRG	Differential Equations, Symmetries and Groups	Z	4
02DING	The purpose of the lecture is to teach students computation of symmetries of the differential equations.	-	•
02ELMA	Electricity and Magnetism	Z,ZK	6
-	oulomb's law, electrostatic field, Gauss' law. Electric dipole, polarization. Conductors and dielectrics. Electric current and circuits, conc	-	-
-	Electrodynamic forces, magnetic field. Magnetic dipole, magnetics. Electromagnetic induction, RLC circuits. Electromagnetic waves, I		
02KM1	Quantum Mechanics 1 ure describes the birth of quantum mechanics and description of one particle and more particles by elements of the Hilbert space as we	Z,ZK	6 on Bosidos
Abstract. The lecte	that it includes description of observable quantities by operators in the Hilbert space and calculation of their space as we		UII. Desides
02MECH	Mechanics	Z	4
	hysics, physical quantities and units. Kinematics of a particle, basic types of motion and their superposition. Dynamics of a particle, so	olving equations of	motion for
one-dimensional	motion, 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
00010	The content of the subject is the examination according to the plan of studies.	7	0
02SMF	Seminar of Mathematical Physics the seminar is to iluminate mathematical physics by virtue of solved examples. It is supposed that the teachers of the physics departm	Z	2
	concerning their scientific activities that could become the topics of the student?s bachelor theses in the next year	ient wiii present si	iipie iasks
02TEF1	Theoretical Physics 1	Z,ZK	4
	troduction to analytical mechanics. The students acquire knowledge of the basic concepts of the Lagrange and Hamiltonian formalisms	· ·	approaches
to description of	dynamics (Newtons, Lagrange, Hamilton and Hamilton-Jacobi equations). The efficiency of these methods is illustrated on elementary	y examples like the	two-body
problem, the mot	tion of a system of constrained mass points, and of a rigid body. Advanced parts of the course cover differential and integral principles	of mechanics. The	subject is
	the first part of the course of classical theoretical physics (02TEF1, 02TEF2).		
02TEF2	Theoretical Physics 2	Z,ZK	4
	nsformations in physics. Mechanics of point mass, rigid body and continuum. The special theory of relativity: relativistic mechanics and		-
winkowski space-	time. Classical electrodynamics: Maxwell's equations in the Minkowski space-time, electromagnetic waves in dielectric media, electron approximation.	nagnetic radiation i	n the alpole
02UKP1	Introduction to Curves and Surfaces	Z	2
	lecture is an introduction to the differential geometry of simple manifolds - curves and two-dimensional surfaces. The basic concepts f		
-	are explained. In the surface theory we introduce first and second fundamental forms and mean and Gaussian curvature. Essential part		
	calculated by students.		
02UKP2	Introduction to Curves and Surfaces 2	Z	2
The lecture exter	nds the course 02UKP1. The properties of the first fundamental form are briefly summarized. The concept of the second fundamental	form is introduced,	leading to
044/6	the mean and Gaussian curvature. Finally, the usual concepts of Riemann geometry are introduced.	7	4
04AKS	English Conversation evelop the student's communication skills acquired throughout their previous studies. It aims to improve all aspects of oral communication	tion The student y	I vill develop
	or various communication situations and will master their communication strategy. They will also practise their listening skills in order t		
-	discussions. The student will be trained to express their ideas clearly and according to current English usage, and become a more cor		1
04XAM1	English for Intermediate Students M1	Z	2
The course is des	igned 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
	anguages (CEFR). It provides an introduction into English for Specific and Academic Purposes (ESP, EAP), i.e., into fundamentals 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
0424M2	extending the knowledge of grammar issues used in EAP.	Z	2
04XAM2	English for Intermediate Students M2 expects the student to have completed the AM1 course. It develops their skills for work with subtechnical texts, focusing also more or	I	
	pical of ESP and EAP (e.g., definition, existence and classification of phenomena, object descriptions). Part of the course is also guided		
	revision is included.	Ū	
04XAM3	English for Intermediate Students M3	Z	2
	p's the skills that enable students to cope with features typical of professional style. Increasing attention is paid to developing subtechnic		-
-	f professional texts. Great emphasis is placed on distinguishing different levels of formal and informal oral and written communication		
equivalents. The c	ourse also includes studying abstracts and rules for writing them as well as basic rules for preparing and giving a short presentation o student's field.	n a chosen topic re	elated to the
04XAMZK	English for Intermediate Students Examination	ZK	4
	tent is the examination as given by the study plan. The examination covers the AM1, AM2, and AM3 courses and consists of two parts	1	-
	-30 min). The student is expected to master the AM syllabus and demonstrate the ability to apply their knowledge gained in the three B		,
04XAP1	English for Advanced Students P1	Z	2
	igned for students who have successfully completed the full secondary school English language course (at least the B1 level of the C	ommon European	Framework
	Languages - CEFR). It provides an introduction into English for Specific and Academic Purposes (ESP, EAP), i.e., into the fundamen	-	
	/le typical of professional oral and written communication situations (fundamentals of terms in mathematics and physics, definitions, g		
covers professiona	al oral and written communication on topics related to the undergraduate's life and needs. It develops skills for free professional writing (w polite request). If necessary, revision of selected grammar topics is included.	nung a Uv, letter of	application,
04XAP2	English for Advanced Students P2	Z	2
	based on AP1, thus extending the student's skills for working with subtechnical texts, and even with professional texts of chosen bra	1	
	ds it concentrates on chosen grammar topics, but mainly intends to develop understanding of syntactic structures and typical rhetorica		-
	nd, if possible, a case study). Increasing emphasis is placed on the undergraduate's independent work with and reading of linguistical		
The course extend	ts 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
	based on AP2 and expects the student to work without any guidance with authentic professional materials and to interpret the text. It in	-	
	ills and functions (e.g., expressing an opinion, agreement, and objections; taking part in discussion, note-taking; summarizing, writing project on a given or chosen topic and presenting it. The course places emphasis on distinguishing levels of formal and informal langu		
also preparing a	communication.	age both in oral a	
04XAPZK	English for Advanced Students Examination	ZK	4
	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		
	courses. The examination consists of 2 parts - written (100 min) and oral (30 min) and includes also oral presentation of a topic from		
04XCESM1	Czech for Foreigners - Intermediate 1	Z	2
The course is focus	sed on correct pronunciation, important morphological phenomena, prepositional phrases, and verb forms as well as on extending the st	udent's vocabulary	for various
	social situations.		
04XCESM2	Czech for Foreigners - Intermediate 2	Z	2
The course develo	ops the topics covered in CESM1 and is then focused on more difficult grammar phenomena. It practices writing, speaking, and readir	g skills and trains t	the student
0.1X050140	in understanding common abbreviations, abbreviated words, and mathematical terms and formulas.		
04XCESM3	Czech for Foreigners - Intermediate 3	Z	2
The last course r	revises morphological topics covered earlier and extends the student's knowledge of more difficult language phenomena. It is especia lexicology and on developing the student's writing skills.	illy focused on styli	stics and
04XCESMZK		ZK	4
	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	I I	
	be taken after successful completion of the 3 courses. Detailed information is to be obtained from the teacher.	111,2,0 0001000 un	a call only
04XCESP1	Czech for Foreign Students - Advanced 1	Z	2
	the course is very good knowledge of the Czech language, i.e., communicative competences at least at level B2 of the Common Europ	bean 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 sciences and the s	ence. Students are	taught the
basics of function	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.	r	
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 a	specialist texts place	cing greater
04205050	emphasis on individual work.	7	
04XCESP3	Czech for Foreigners - Advanced 3 ps the student's knowledge from CESP2. It includes working with authentic specialist materials, their interpretation and presentation, a		2
The course develop	student's project. Writing skills necessary for professional communication are trained.	and, finally, present	
04XCESPZK		ZK	4
	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		
	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
	gned for students of the English programme. Students will become acquainted with the main characteristics of Czech (phonetic and g	rammar features) a	nd they will
acquire basic langu	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.	r	
04XCESZ2	Czech for Foreigners - Beginners 2	Z	2
The language and	I communication competences acquired in CESZ1 are further developed. Students deepen their knowledge of the declension and cor	jugation system ar	nd practise
04XCESZ3	basic communication topics. The course covers roughly lessons 3-5 in Czech Express by L. Holá and P. Bo ilová.	Z	2
	Czech for Foreigners - Beginners 3 er develops the language and communication competences acquired in the XCESZ1 and XCESZ2 courses. The teaching focuses on	_	2 ocabulary
	inclation and deepening grammar, features through practice, as well as introducing the Czech culture. Students are asked to produce		
	ialogue. They also practise understanding texts in terms of main ideas or looking for specific details in texts. The course covers roughly	-	
	1.		
04XCESZZK	Czech for Foreigners Beginners - Examination	ZK	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 course	s 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	Z	2
	ate FM The objective of this three-semester course is to improve and further develop communication in the French language in both v		
	ommunicate in social interaction and in academic, scientific and professional environment. They will be able to use the language to tra solve problems. FM1 The course builds on and further develops linguistic competence acquired at secondary school. It revises, syste	-	
	vious study. The following topics are covered: University studies in our country and in France, writing of transactional letters, CV, persor	-	
e .	French culture and geography, Paris. Topics of specialization: mathematics, physics. Reading technical and popular science texts, wo		
04XFM2	French for Intermediate Students M2	Z	2
Course FM2 builds	on FM1. Linguistic structures and competence acquired in previous study are systemized and expanded. Reading popular science text	s, features typical f	or technical
and scientific lar	nguage (passives, nominalization, word formation). Topics: physics, power engineering, environment, Internet, success of French scie	nce and technology	y, French
	scientists, artists and architects. Description of an object, device, shapes, dimensions, material.		
04XFM3	French for Intermediate Students M3	Z	2
	sed on improvement and further development of linguistic competence acquired during the follow-up courses. Syntactic structures (sub		
	res, compound tenses). Text summaryStudents prepare a written paper which will be delivered in form of an oral presentation in-clas uture specialisation or to their interest and generally covers a technical /applied science topic. It is not a translation but a creative work		
	e's own knowledge/experienceLonger monologues on topics /situations set for the examination are prepared. Text structure, cohesi	-	
04XFMZK	French for Intermediate Students Examination	ZK	4
	e examination as given by the study programme. The whole French programme is ended with an examination covering the contents of	I I	
	consists of a written and oral part and is organized according to Examination Instructions, a document available on the web		
04XFP1	French for Advanced Students P1	Z	2
	se The objective of this three-semester course is to improve and further develop communication in the French language in both write		
	nicate in social interaction and in academic, scientific and work environment. They will be able to use the language to transmit general		
•	FP1 The course builds on and further develops linguistic competence acquired at secondary school. Difficult grammar topics are repea aparfait, pronouns. The following specific topics are covered: University studies in our country and in France, writing of transactional le		
Passe compose-III	partial, processo, the following opcome topics are covered. On versity studies in our country and in France, whiln y of italisabilitiane	, ev, personal	succindit,

internet, physics, chemistry. Reading of technical and popular science texts, further work with these texts and interpretation		
04XFP2 French for Advanced Students P2		2
With the link to P1 contents, the course further develops language skills. Focus is put on reading popular science texts and on oral communication on g	iven tenics Feature	_
technical and scientific communication are stressed (passive voice, nominalization, word formation).	iven topics. I eature	s typical of
04XFP3 French for Advanded Students P3	Z	2
The course is focused on systemization and improvement of acquired linguistic competence, skills and knowledge, and their use for communication in en	I – I	
skill - translation 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.		
04XFPZK French for Advanced Students Examination	ZK	4
The whole French program is ended with an examination covering the contents of FP1-FP3. The examination consists of a written and/or an oral part		
Examination Instructions, a document available on the web. Assessment of the presentation is included into the examination gr	-	g
04XFZ1 French for Beginners Z1	Z	2
French for beginners 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	I – I	
The course includes French for specific / technical communication and reading of popular science and scientific texts. FZ1 The objective is to be able t		
level, actively using the knowledge of chosen elementary language. The contents is roughly outlined by lessons 1 - 7 of the textbook Pravda - Pravd	dová, French for be	ginners
(Francouzština pro za áte ky). It is extended with situations of communication and functions from the textbook Espaces I, lessons 1-4 : introductions, per	ersonal information,	asking and
giving the directions, simple instructions and questions. Special attention is paid to pronunciation. Spelling is explained in connection with pronu	nciation and gram	nar.
04XFZ2 French for Beginners Z2	Z	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 the		
French for Beginners . Additional topics and skills are filled in from the textbook Espaces I, lesson 1 - 5 (introductions, invitation, welcoming, agreeme		
thanking, travelling, map of France, food, expression of will, wish, order, prohibition, pleasure). Correct pronunciation is practiced. Stress on oral communi	cation. Specific topi	cs covered:
How does the machine work? A few expressions concerning the study. Name of University and Faculty.		
04XFZ3 French for Beginners Z3	Z	2
The course builts upon FZ2. Basic linguistic knowledge and skills are developed. The contents is given by lessons 14 - 18 of the textbook: Pravda - Pravide		-
Topics, functions and situations are complemented from other materials. Stress is put on oral communication in dialogues and on reading, both for inf	ormation and loud	as part of
pronunciation practice. Reading covers short adapted texts of general interest first, and later popular science texts.	-	
04XFZ4 French for Beginners Z4	Z	2
The course builds up on FZ3. Basic linguistic knowledge and skills are further developed. Oral communication and reading skills are practiced. The course shows a state of the textbook French for Beginners, and is expanded with topics and functions from other materials. Reading is developed from the lecture		
Students of FJFI. The course covers generals and specific topics: health- illness, sport, free time, environment, study, travelling in France, Paris, shopp		
country and in France, how to write CV, application, topics in mathematics, reading physics - mechanics, informatics, intern	-	
04XFZ5 French for Beginners Z5	7	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. They p	resent it orally in the	
general contents is covered by lessons 24 - 26 of the textbook: Pravda-Pravdova, French for Beginners, and is complemented from other materials. To		
notes, success of French science and technology, information about France. Grammar is systemized and complemented with syntax (subordinate cl	auses, typical conju	inctions,
subjunctive clauses, gerund, passive.		
Subjunctive clauses, gerund, passive. 04XFZZK French for Beginners Examination	ZK	3
		-
04XFZZK French for Beginners Examination 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 Instruction for examination. Its content covers the levels FZ1 - FZ5.		-
04XFZZK French for Beginners Examination 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 for examination. Its content covers the levels FZ1 - FZ5. 04XNM1 German for Intermediate Students M1	ation is ruled by the	e document
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students are trained to process information gained from their reading of complex and difficult texts and present it to the class in a simplified oral form. The course also includes translation

	practice to and from German.		
04XNPZK	German for Advanced Students Examination	ZK	4
	the examination as given by the study plan. The whole German for Advanced Students Course is completed by an examination c er the courses NP1 - NP3. The oral part follows after passing the written part successfully and after obtaining the 04NP3 ungraded	•	
	information is to be obtained from the teacher.		o detalled
04XRM1	Russian for Intermediate Students M1	Z	2
-	d for students with previous knowledge of Russian from secondary schools. Students are supposed to know the Russian alphabet		
	ommunication in everyday situations (introductions, socializing, greetings, shopping for food and objects of everyday need, asking grammar structures (verbal and nominal forms, irregular verbs, pronouns). The initial knowledge corresponds to the achievement		
	contents and scope of the course correspond approximately to the RZ3 course, but for half of the time allotted in the timetal		
04XRM2	Russian for Intermediate Students M2	Z	2
	e course is based on the RM1 course, its contents and scope correspond roughly to RZ4, however, for half of the time allotted in the	1	-
04XRM3	Russian for Intermediate Students M3 the knowledge and skills acquired in RM1 and RM2 and its contents and scope are roughly at the same level as those of RZ5, how	Z	2 imp allotted
The course develops i	in the timetable.		inte allotteu
04XRMZK	Russian for Intermediate Students Examination	ZK	4
	the examination as given by the study plan. The course is completed by taking a written and oral examination testing the knowled		
	ts are eligible for the oral examination only after a prior pass in RM3 and a successful written examination. Students are given inst	-	
04XRP1	Russian for Advanced Students P1 ement for the course is to achieve the B1 CEFR level. The objective of the course is revision of standard language structures, prac	Z	2 grammar
The entrance require	structures, understanding the fundamentals of technical language and training writing skills.		grammar
04XRP2	Russian for Advanced Students P2	Z	2
The course is based	on RP1. It expands grammatical structures important for understanding technical texts (verbal adjectives, participles, passives, ve	erb aspects, specific	c syntactic
	structures). Stress is put on independent oral and written communication.	7	2
04XRP3	Russian for Advanced Students P3 on RP2 and is mainly focused on working with technical and scientific texts (reading comprehension, oral and written paraphrasin	∠ g. translation). The	
	previous knowledge of general language at secondary level (listening, reading, correct communication in everyday situations). Th		
	study is aimed at professional and technical skills (reading technical literature according to the students' specialization, oral and w		
develop their subtechr	nical vocabulary and practice quick and correct communication in professional situations. They will be able to both speak write acc technical topics.	urately and with co	nfidence on
04XRPZK	Russian for Advanced Students Examination	ZK	4
	the examination as given by the study plan. The course is completed by taking a written and oral examination testing the knowled		•
	ts are eligible for the oral examination only after a prior pass in RP3 and a successful written examination. Students are given inst	ructions by the teac	
04XRZ1	Russian for Beginners Z1	Z	2
-	s the first stage of the five-semester programme, its final aim being reading and understanding professional texts written in Russiar (for both reading and writing skills) and fundamentals of grammar necessary for everyday communication (listening and speaking	-	- 1
-	(for both reading and writing skills) and fundamentals of grammar necessary for everyday communication (listening and speaking a short text with marked stress, understand its contents and summarize it.	-	- 1
-	(for both reading and writing skills) and fundamentals of grammar necessary for everyday communication (listening and speaking	-	- 1
the Russian alphabet 04XRZ2 The second semester	(for both reading and writing skills) and fundamentals of grammar necessary for everyday communication (listening and speaking a short text with marked stress, understand its contents and summarize it. Russian for Beginners Z2 r of the programme is designed to teach skills for basic communication in everyday situations and for reading easy and short subto). Students will be a	able to read
the Russian alphabet 04XRZ2 The second semester	(for both reading and writing skills) and fundamentals of grammar necessary for everyday communication (listening and speaking a short text with marked stress, understand its contents and summarize it. Russian for Beginners Z2 r of the programme is designed to teach skills for basic communication in everyday situations and for reading easy and short subtrusing short sentences and appropriate structures, and read aloud with confidence a short text without marked stress. They will also). Students will be a Z echnical texts. Stud o develop their voca	able to read
the Russian alphabet 04XRZ2 The second semester	(for both reading and writing skills) and fundamentals of grammar necessary for everyday communication (listening and speaking a short text with marked stress, understand its contents and summarize it. Russian for Beginners Z2 r of the programme is designed to teach skills for basic communication in everyday situations and for reading easy and short subto). Students will be a Z echnical texts. Stud o develop their voca	able to read
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04XSMZK	Spanish for Intermediate Students Examination	ZK	4
The course con	tent is the examination as given by the study plan. XSMZK examination consists of two parts: written and oral; to be eligible for the wri obtained non-graded assessment for course XSM3. Oral examination follows the written part.	lien part, student	s will have
04XSP1	Spanish for Advanced Students P1	Z	2
	es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication.	_	
	of CEFR.		
04XSP2	Spanish for Advanced Students P2	Z	2
Course XSP2 is th	e second part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and syntal	k and focuses on	independen
	written communication.		
04XSP3	Spanish for Advanced Students P3	Z	2
Course XSP3 is th	e final part of the advanced Spanish course. It is based on texts chosen by the students according to their future specialization. It is focu	sed on written co	mmunication
	based on what students will need in their career.		
04XSPZK	Spanish for Advanced Students Examination	ZK	4
The course cont	ent is the examination as given by the study plan. Examination XSPZK consists of two parts, namely oral and written. The prerequisite	for admission to	oral part is
	ing passed the written test. Examination content is based on syllabi of courses XSP1, XSP2, and XSP3 or on an individual study plan	of the student.	
04XSZ1	Spanish for Beginners Z1	Z	2
	he first stage of the five-semester programme of Spanish studies; during the first stage the students will master phonetics and fundame	-	
	to communicate at an elementary level on topics of everyday life. They will acquire and extend fundamental vocabulary of general Spa		
04XSZ2	Spanish for Beginners Students Z2	Z	2
	ased on course XSZ1, and expects students to develop and extend the knowledge and skills acquired so far. Grammar structures and		
enable them to u	nderstand short adapted written texts and speech. Attention is also paid to cultural differences between Spanish-speaking countries a	nd others such a	s the Czech
04XSZ3	Republic. Realia of Spanish-speaking countries are also included.	7	2
	Spanish for Beginners Z3 s upon the foundations established in course XSZ2 and further develops students vocabulary and grammatical competence. It include:	_	
	super the foundations established in course X322 and further develops students vocabulary and grammatical competence. It includes to span the students vocabulary and grammatical structures, including t		
	to imperfecto, the gerund, and the imperative. The course also focuses on both written and spoken communication on general topics.		
, [through targeted reading and listening activities.		
04XSZ4	Spanish for Beginners Z4	Z	2
	ed on course XSZ3. It develops the student's vocabulary and extends the knowledge of the culture and social customs of the Spanish	speaking countri	
Spain. It pays atte	ention to further grammar topics (perifrasis verbales, futuro imperfecto, direct object and indirect object pronouns, negative form of the	imperative, and	subjunctive),
	to written and oral communication on a given general or subtechnical topic, for which the student is trained by reading texts or listening	ig 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	specific purpose	es. In its final
	part, the general Spanish course based on the course book will end with a written and oral examination.		,
04XSZZK	Spanish for Beginners Examination	ZK	3
The course cont	ent is the examination as given by the study plan. Examination consists of two parts - written and oral. Student can register for oral examination consists of two parts - written and oral.	amination only if	he/she has
	passed the written examination test.		
12UNXAP	Introduction to UNIX	Z	2
	operating systems. Personal computer, workstation and supercomputers. Processor, memory, bus, devices, hard disk, network interfac ting systems. Operating system UNIX. Basic principles, kernel, kernel services. Documentation. File system, file atributes, working wit		
	reter (shell) bash and its programming (scripts). Controlling processes, process status, computer load a process priorities. Standard to		
	mputer networks. Local computer networks. Global computer networks. Addresses and protocols TCP/IP. Network configuration of a co		
	hardware sharing, mail, scp, etc. Network applications		
14TED	Creating Electronic Documents	Z	2
	ating and presenting student theses. Individual exercises focus on creating and formatting texts, equations, charts, tables, presentation	ns and entire doc	uments in ar
	office suite.		
15CH1	General Chemistry 1	Z	3
The most importar	nt concepts, quantities and units used in chemistry are introduced in the course General Chemistry I. Their significance and practical u	se are illustrated	by examples
	solved in exercises.		
15CH2	General Chemistry 2	Z,ZK	3
-	continuation of the course General chemistry I. The main attention is paid to general principles governing chemical processes. Using v	-	
the validity of these	e principles is not restricted only to chemical processes is documented. The significance and practical use of explained principles are	llustrated by exa	mples solved
	in exercises.		1 .
18PMTL	Programming in MATLAB	KZ	4
	o environment as efficient tool for computation in complex arrays and symbolic variables, namely for linear algebra, mathematic analys	sis, statistics, algo	orithmization
Introducing Matlal			
	and geometric representation of results.		-
Introducing Matlal	Programming in C++ 1	Z	4
18PRC1	Programming in C++ 1 This course covers mainly the C programming language and non-object oriented features of the C++ language.		
18PRC1 18PRC2	Programming in C++ 1 This course covers mainly the C programming language and non-object oriented features of the C++ language. Programming in C++ 2	KZ	4
18PRC1 18PRC2 This c	Programming in C++ 1 This course covers mainly the C programming language and non-object oriented features of the C++ language. Programming in C++ 2 course covers the object oriented programming and othesr advanced constructs in the C+;+ programming language and the Standard	KZ Template Library	4
18PRC1 18PRC2 This of 18PROP	Programming in C++ 1 This course covers mainly the C programming language and non-object oriented features of the C++ language. Programming in C++ 2 course covers the object oriented programming and othesr advanced constructs in the C+;+ programming language and the Standard Practical training in programming	KZ Template Library KZ	4
18PRC1 18PRC2 This of 18PROP The goal of this	Programming in C++ 1 This course covers mainly the C programming language and non-object oriented features of the C++ language. Programming in C++ 2 course covers the object oriented programming and othesr advanced constructs in the C+;+ programming language and the Standard Practical training in programming course is to understand advanced topics related to programming, code design and software project development. Students will practic	KZ Template Library KZ e pragmatic tech	4 3 niques and
18PRC1 18PRC2 This of 18PROP The goal of this	Programming in C++ 1 This course covers mainly the C programming language and non-object oriented features of the C++ language. Programming in C++ 2 course covers the object oriented programming and othesr advanced constructs in the C+;+ programming language and the Standard Practical training in programming course is to understand advanced topics related to programming, code design and software project development. Students will practic rete real-world examples. Emphasis is put on the review of freely available software tools that can improve the programmers work efficiency.	KZ Template Library KZ e pragmatic tech	4 3 niques and
18PRC1 18PRC2 This c 18PROP The goal of this principles on conc	Programming in C++ 1 This course covers mainly the C programming language and non-object oriented features of the C++ language. Programming in C++ 2 course covers the object oriented programming and othesr advanced constructs in the C+;+ programming language and the Standard Practical training in programming course is to understand advanced topics related to programming, code design and software project development. Students will practic rete real-world examples. Emphasis is put on the review of freely available software tools that can improve the programmers work effic of the final source code.	KZ Template Library KZ e pragmatic tech iency and ensure	4 3 niques and high quality
18PRC1 18PRC2 This c 18PROP The goal of this principles on conc 18ZALG	Programming in C++ 1 This course covers mainly the C programming language and non-object oriented features of the C++ language. Programming in C++ 2 course covers the object oriented programming and othesr advanced constructs in the C+;+ programming language and the Standard Practical training in programming course is to understand advanced topics related to programming, code design and software project development. Students will practic rete real-world examples. Emphasis is put on the review of freely available software tools that can improve the programmers work effic of the final source code. Basics of Algorithmization	KZ Template Library KZ e pragmatic tech iency and ensure Z,ZK	4 3 niques and a high quality 4
18PRC1 18PRC2 This c 18PROP The goal of this principles on conc 18ZALG This course is	Programming in C++ 1 This course covers mainly the C programming language and non-object oriented features of the C++ language. Programming in C++ 2 course covers the object oriented programming and othesr advanced constructs in the C+;+ programming language and the Standard Practical training in programming course is to understand advanced topics related to programming, code design and software project development. Students will practic rete real-world examples. Emphasis is put on the review of freely available software tools that can improve the programmers work effic of the final source code. Basics of Algorithmization s devoted to selected algorithms and methods for algorithm design. This course intruduces selected methods for the determination of	KZ Template Library KZ e pragmatic tech tiency and ensure Z,ZK the algorithm cor	4 niques and high quality 4 nplexity.
18PRC1 18PRC2 This of 18PROP The goal of this principles on conce 18ZALG This course is 18ZPRO	Programming in C++ 1 This course covers mainly the C programming language and non-object oriented features of the C++ language. Programming in C++ 2 course covers the object oriented programming and othesr advanced constructs in the C+;+ programming language and the Standard Practical training in programming course is to understand advanced topics related to programming, code design and software project development. Students will practic rete real-world examples. Emphasis is put on the review of freely available software tools that can improve the programmers work effice of the final source code. Basics of Algorithmization s devoted to selected algorithms and methods for algorithm design. This course intruduces selected methods for the determination of Basics of Programming	KZ Template Library KZ e pragmatic tech iency and ensure Z,ZK the algorithm cor Z	4 niques and e high quality 4 nplexity. 4
18PRC1 18PRC2 This of 18PROP The goal of this principles on conce 18ZALG This course is 18ZPRO	Programming in C++ 1 This course covers mainly the C programming language and non-object oriented features of the C++ language. Programming in C++ 2 course covers the object oriented programming and othesr advanced constructs in the C+;+ programming language and the Standard Practical training in programming course is to understand advanced topics related to programming, code design and software project development. Students will practic rete real-world examples. Emphasis is put on the review of freely available software tools that can improve the programmers work effice of the final source code. Basics of Algorithmization s devoted to selected algorithms and methods for algorithm design. This course intruduces selected methods for the determination of Basics of Programming Intended mainly for students with little or no experience in programming. It familiarizes the students with the basic concepts in programming.	KZ Template Library KZ e pragmatic tech iency and ensure Z,ZK the algorithm cor Z	4 niques and e high quality 4 nplexity. 4
18PRC1 18PRC2 This of 18PROP The goal of this principles on conce 18ZALG This course is 18ZPRO This course is	Programming in C++ 1 This course covers mainly the C programming language and non-object oriented features of the C++ language. Programming in C++ 2 course covers the object oriented programming and othesr advanced constructs in the C+;+ programming language and the Standard Practical training in programming Practical training in programming course is to understand advanced topics related to programming, code design and software project development. Students will practic Preceive real-world examples. Emphasis is put on the review of freely available software tools that can improve the programmers work effice of the final source code. Basics of Algorithmization s devoted to selected algorithms and methods for algorithm design. This course intruduces selected methods for the determination of Basics of Programming intended mainly for students with little or no experience in programming. It familiarizes the students with the basic concepts in programming language.	KZ Template Library KZ e pragmatic tech isency and ensure Z,ZK the algorithm cor Z aming and with th	4 3 niques and b high quality 4 nplexity. 4 e Python
18PRC1 18PRC2 This of 18PROP The goal of this principles on conce 18ZALG This course is 18ZPRO	Programming in C++ 1 This course covers mainly the C programming language and non-object oriented features of the C++ language. Programming in C++ 2 course covers the object oriented programming and othesr advanced constructs in the C+;+ programming language and the Standard Practical training in programming course is to understand advanced topics related to programming, code design and software project development. Students will practic rete real-world examples. Emphasis is put on the review of freely available software tools that can improve the programmers work effice of the final source code. Basics of Algorithmization s devoted to selected algorithms and methods for algorithm design. This course intruduces selected methods for the determination of Basics of Programming Intended mainly for students with little or no experience in programming. It familiarizes the students with the basic concepts in programming.	KZ Template Library KZ e pragmatic tech iency and ensure Z,ZK the algorithm cor Z	4 aniques and be high quality 4 aplexity. 4

TV-3	Physical education	Z	1
TV-4	Physical education	Z	1

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