Study plan

Name of study plan: Aplikace informatiky v p írodních v dách

Faculty/Institute/Others:

Department:

Branch of study guaranteed by the department: Welcome page

Garantor of the study branch:

Program of study: Applications of Informatics in Natural Sciences

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: BSPAIPV1

Name of the group: BS P_AIPVB 1st year

Requirement credits in the group:

Requirement courses in the group: In this group you have to complete at least 17 courses

Credits in the group: 0

Note on the group: Podmínkou skládání zkoušky 01MANZ je získání zápočtu z 01MAN.Podmínkou skládání

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, Miroslav Myška Miroslav Myška Igor Jex (Gar.)	Z	2	2+0	Z	Р
01DIM1	Discrete Mathematics 1 Edita Pelantová, Zuzana Masáková, Lubomíra Dvo áková Lubomíra Dvo áková Zuzana Masáková (Gar.)	Z	2	2P+0C	Z	Р
01DIM2	Discrete Mathematics 2 Edita Pelantová, Zuzana Masáková Zuzana Masáková (Gar.)	Z	2	2P+0C	L	Р
01LAL	Linear Algebra 1 Lubomíra Dvo áková, Petr Ambrož Lubomíra Dvo áková Lubomíra Dvo áková (Gar.)	Z	2	2P+2C		Р
01LALZ	Linear Algebra 1, exam Lubomíra Dvo áková, Petr Ambrož Lubomíra Dvo áková Lubomíra Dvo áková (Gar.)	ZK	2	0P+0C		Р
01LAL2	Linear Algebra 2 Lubomíra Dvo áková, Petr Ambrož Lubomíra Dvo áková Lubomíra Dvo áková (Gar.)	Z,ZK	4	2P+2C		Р
18MAK1	Macroeconomics 1 Quang Van Tran Quang Van Tran (Gar.)	Z,ZK	4	2+2	L	Р
01MAN	Calculus 1 Edita Pelantová, Miroslav Kolá, Pavel Strachota Pavel Strachota Edita Pelantová (Gar.)	Z	4	4+4		Р
01MANZ	Calculus 1, exam Edita Pelantová, Miroslav Kolá, Pavel Strachota Pavel Strachota (Gar.)	ZK	4	0P+0C		Р
01MAN2	Calculus 2 Edita Pelantová, Severin Pošta, Miroslav Kolá Miroslav Kolá Severin Pošta (Gar.)	Z,ZK	8	4P+4C		Р
18MIK	Microeconomics Quang Van Tran Quang Van Tran (Gar.)	Z,ZK	4	2P+2C	Z	Р
18PPY1	Programming in Python 1 Matej Mojzeš, Jakub Klinkovský Jakub Klinkovský (Gar.)	Z	2	2C	L	Р
00PT	Preparatory Week Petr Ambrož, Milan Krbálek Petr Ambrož Petr Ambrož (Gar.)	Z	2	týden	Z	Р
18OS	Operating Systems Administration Vladimír Jarý Vladimír Jarý Vladimír Jarý (Gar.)	KZ	2	0+2	L	Р

18ZPRO	Basics of Programming Maksym Dreval, Jakub Klinkovský, Vladimír Jarý, Petr Pauš, František Vold ich, Miroslav Virius, Zuzana Pet í ková, Jan Tomsa Miroslav Virius Miroslav Virius (Gar.)	Z	4	4C	Z	Р
Characteristics o	f the courses of this group of Study Plan: Code=BSPAIPV1 Name=F	BS P AIPVE	1st vear			
02DEF1	History of Physics 1	30 1 _A.I. V.	rot your		Z	2
	n the system of sciences. The relationship of man and nature. Natural sciences in ancient Or	ientand Greece	Greek natur	l al philosoph	1	
•	imed. Arabic science, European science in Middle Ages. Renaissance - da Vinci, Giordano E					•
	e. Newton and his work.		-, -, -, -	, . , 5		
01DIM1	Discrete Mathematics 1				Z	2
-	to elementary number theory and applications. It includes individual problem solving.				_	_
01DIM2	Discrete Mathematics 2				Z	2
	d to recurrence relations. It includes individual problem solving.				_	2
01LAL					Z	2
-	Linear Algebra 1	5 Linear manni	age 6 Matric	os of linear	_ ,	·—
theorem.	ar dependence and independence. 3. Basis and dimension. 4. Subspaces of vector spaces.	э. штеаг таррп	igs. o. Mairic	es oi iiileai	ттаррітуь.	7. Flobellius
01LALZ	Linear Algebra 1 avem				71/	
	Linear Algebra 1, exam				ZK	2
01LAL2	Linear Algebra 2				z,zk	4
	rix and operator. 2. Permutation and determinant. 3. Spectral theory (eigenvalue, eigenvector	_	•			
	lity. 6. Metric geometry. 7. Riesz theorem and adjoint operator. Outline of the exercises: 1. Me					
	culation of eigenvalues and eigenvectors. 4. Hermitian and quadratic forms. Canonical form.	Scalar produc	t and orthog	onality. Calc	ulation of o	orthogonal
complements. 6. Geom	etry – exercises and examples. 7. Adjoint operators.					
18MAK1	Macroeconomics 1			Z	',ZK	4
Macroeconomics I prov	vides students with a fundamental theoretical basis for understanding how an economy work	s. It introduces r	nain macroe	conomic ind	icators, mo	oney market,
macroeconomic equilib	rium theory, fundamentals of open economy theory, inflation, unemployment, economic grow	vth, economic flu	uctuations, b	asic macroe	conomic m	nodels of IS-LN
AS-AD and their implica	ations for economic policies. The learning outcomes of the course is to equip students with abili	tu to analuza ma				ntoroonnootion
	9	ty to analyze mai	croeconomic	prienomena	a and their i	nierconnection
and subsequently to us	se them under the conditions of modern economic life.	ty to analyze mai	croeconomic	prienomena	a and their i	merconnection
and subsequently to us 01MAN		ty to analyze ma	croeconomic	prieriornena	Z	4
01MAN	se them under the conditions of modern economic life.	ty to analyze mai	croeconomic	prieriomena		
01MAN	se them under the conditions of modern economic life. Calculus 1 alysis, functions of one real variable, differential calculus).	ty to analyze mai	croeconomic			
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Introduction to UNIX
Milan Kucha ík Milan Kucha ík (Gar.)

Vladimír Jarý, Petr Pauš, František Vold ich, Miroslav Virius, František Gašpar, Zuzana Pet í ková **Vladimír Jarý** Miroslav Virius (Gar.)

Basics of Algorithmization

12UNXAP

18ZALG

Code of the group: BSPAIPV2

Name of the group: BS P_AIPVB 2nd year

Requirement credits in the group:

Requirement courses in the group: In this group you have to complete at least 11 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
02FY1	Physics 1 Jaroslav Biel ík Jaroslav Biel ík (Gar.)	Z,ZK	4	2P+2C	Z	Р
02FY2	Physics 2 Jaroslav Biel ík Jaroslav Biel ík (Gar.)	Z,ZK	4	2P+2C	L	Р
18MAK2	Macroeconomics 2 Quang Van Tran Quang Van Tran (Gar.)	Z,ZK	4	2+2	Z	Р
01ANB3	Calculus B 3 Miroslav Kolá, Milan Krbálek Miroslav Kolá Milan Krbálek (Gar.)	Z,ZK	8	4P+4C		Р
01ANB4	Calculus B 4 Ji í Mikyška, Miroslav Kolá, Milan Krbálek Milan Krbálek Milan Krbálek (Gar.)	Z,ZK	6	2P+4C		Р
12NME1	Numerical Methods 1 Pavel Váchal Pavel Váchal (Gar.)	Z,ZK	4	2+2	L	Р
18PRC1	Programming in C++ 1 Vladimír Jarý, Miroslav Virius Miroslav Virius (Gar.)	Z	4	2+2	Z	Р
18PRC2	Programming in C++ 2 Jakub Klinkovský, Vladimír Jarý, Miroslav Virius Miroslav Virius (Gar.) Virius (Gar.)	KZ	4	2+2	L	Р
18PMTL	Programming in MATLAB Quang Van Tran, Jaromír Kukal Quang Van Tran Jaromír Kukal (Gar.)	KZ	4	4C	Z	Р
01PSL	LaTeX - Publication Instrument Petr Ambrož Petr Ambrož Petr Ambrož (Gar.)	Z	2	0+2	L	Р
18GUI	Construction og Grafical user nterface Vladimír Jarý Vladimír Jarý Vladimír Jarý (Gar.)	Z	2		L	Р

	Vladimír Jarý Vladimír Jarý Vladimír Jarý (Gar.)					
Characteristics of	the courses of this group of Study Plan: Code=BSPAIPV2 Name	=BS P_AIPVI	B 2nd year			
02FY1	Physics 1	-		Z,ZK		4
History, principles and a	applications of mechanics, waves and thermodynamics? basic level. The lecture is supply	lemented with prac	ctical investiga	1 '		of selected
physical phenomena.						
02FY2	Physics 2			Z,ZK		4
	ricity and magnetism, modern physics. The lecture is supplemented with practical investi	igation and demon	stration of sele			na.
18MAK2	Macroeconomics 2			Z.ZK		4
• · · · · · · · · · · · · · · · · · · ·	ends theoretical knowledge acquired from Macroeconomics I of its students with the lates	st knowledge of co	ntemporary m	, -,	- 1	e models of
	cially those with an emphasis on the role of human capital and technological progress. F	_			-	
nodeling, i.e., macroec	onomic models derived from microeconomic behavior of subjects and economics and their	r rational expectation	ons. It also prov	vides students w	ith mode	rn knowledge
of labor market modelin	ng.					
01ANB3	Calculus B 3			Z,ZK		8
. Functional sequence	s and series - convergence range, criteria of uniform convergence, continuity, limit, differ	entiation and integ	ration of functi	ional series, pow	ver serie	s, Series
xpansion, Taylor's the	orem. 2. Ordinary differential equations - equations of first order (method of integration fa	actor, equation of E	Bernoulli, sepa	ration of variable	es, homo	ogeneous
quation and exact equa	ation) and equations of higher order (fundamental system, reduction of order, variation of	parameters, equati	ions with const	ant coefficients	and spec	cial right-hand
ide, Euler differential e	equation). 3. Metric spaces - metric, norm, scalar product, neighborhood, interior and external extern	erior points, bound	ary point, isola	ated and non-iso	lated po	int, boundary
f set, completeness of	space, Hilbert spaces. Orthogonal polynomials. Complete orthogonal systems. 4. Fourier	series - expansion	of functions int	to Fourier series,	, trigonoi	metric Fourie
eries and their conver	gence. 5. Differential calculus of functions of several variables - limit, continuity, partial an	nd directional deriva	ative, gradient,	total derivatives	s and tar	ngent plane,
	gence. 5. Differential calculus of functions of several variables - limit, continuity, partial an ry terms of vector analysis, Jacobi matrix. 6. Functions defined implicitly by one or severa		ative, gradient,	, total derivatives	s and tar	ngent plane,
aylor series, elementa 01ANB4	ry terms of vector analysis, Jacobi matrix. 6. Functions defined implicitly by one or several Calculus B 4	al equations.		Z,ZK		6
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Code of the group: BSPAIPV3
Name of the group: BS P_AIPVB 3rd year
Requirement credits in the group:

Requirement courses in the group: In this group you have to complete at least 16 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
18AOV	Applied operational research Quang Van Tran, Adam Borovi ka Quang Van Tran Quang Van Tran (Gar.)	Z,ZK	4	2P+2C	L	Р
18BPSE1	Bachelor Thesis 1 Milan Kucha ík, Radek Fu ík, Dana Majerová Milan Kucha ík Milan Kucha ík (Gar.)	Z	5	0+5	Z	Р
18BPSE2	Bachelor Thesis 2 Milan Kucha ík, Radek Fu ík, Dana Majerová Milan Kucha ík Milan Kucha ík (Gar.)	Z	10	0+10	L	Р
18EKN	Econometrics Quang Van Tran, Radek H ebík Quang Van Tran Quang Van Tran (Gar.)	Z,ZK	4	2P+2C	L	Р
01LIP	Linear Programming Jan Volec Jan Volec (Gar.)	Z,ZK	3	2+1	Z	Р
01PGR1	Computer Graphics 1 Pavel Strachota Pavel Strachota (Gar.)	Z,ZK	2	1P+1C		Р
01PGR2	Computer Graphics 2 Pavel Strachota Pavel Strachota (Gar.)	Z,ZK	2	1P+1C		Р
01PRST	Probability and Statistics Tomáš Hobza Tomáš Hobza Tomáš Hobza (Gar.)	Z,ZK	4	3+1	Z	Р
18PJ	Programming in Java Miroslav Virius Miroslav Virius (Gar.)	Z,ZK	5	2P+2C	Z	Р
18PW	Web environment and markup languages Pavel Eichler Dana Majerová Dana Majerová (Gar.)	KZ	2	2C	Z	Р
18SBAK	Bachelor Seminar Milan Kucha ík, Miroslav Virius, Jaromír Kukal Milan Kucha ík Milan Kucha ík (Gar.)	Z	2	0+2	L	Р
01TKO	Theory of Codes Edita Pelantová, Jan Volec Edita Pelantová Jan Volec (Gar.)	ZK	2	2P+0C	L	Р
18INTA	Development of internet applications Jakub Klinkovský, Dana Majerová Dana Majerová (Gar.)	KZ	4	2P+2C	L	Р
12UPF1	Introduction to Computational Physics 1 Milan Kucha ík, Richard Liska Milan Kucha ík Milan Kucha ík (Gar.)	Z,ZK	2	1P+1C	Z	Р
12UPF2	Introduction to Computational Physics 2 Milan Kucha ík, Richard Liska Milan Kucha ík Milan Kucha ík (Gar.)	Z,ZK	2	1P+1C	L	Р
12ZMDT	Measurement and Data Processing Ivan Procházka, Josef Blažej Josef Blažej Ivan Procházka (Gar.)	Z,ZK	2	1P+1C	Z	Р

using Blender, an open-source 3D modeling and rendering software instrument.

18AOV	Applied operational research	Z,ZK	4
The course is an int	roduction course to selected models and methods for economic decision making. The main attention is given to the introductio	n to the methods and	d possibilities o
their real application	ns and problem solving by means of the current software products.		
18BPSE1	Bachelor Thesis 1	Z	5
The bachelor projec	t is based on a topic approved by the administrators of the programme, department and by the dean. The student is guided by th	e project supervisor	during commo
regular meetings ar	d discussions.		
18BPSE2	Bachelor Thesis 2	Z	10
The bachelor project	t is based on a topic approved by the administrators of the programme, department and by the dean. The student is guided by th	e project supervisor	during commo
regular meetings ar	d discussions.		
18EKN			
IOEKIN	Econometrics	Z,ZK	4
-	Econometrics Economic theory and the relations between economic quantities are expressed by mathematical tools and observed data	1 ' 1	-
Econometrics is ba		ta from economic rea	ality. The cours
Econometrics is bas covers basic instrun	sed on economic theory and the relations between economic quantities are expressed by mathematical tools and observed data	ta from economic rea	ality. The cours
Econometrics is bas covers basic instrun verification.	sed on economic theory and the relations between economic quantities are expressed by mathematical tools and observed data	ta from economic rea	ality. The cours
Econometrics is bar covers basic instrun verification. 01LIP	sed on economic theory and the relations between economic quantities are expressed by mathematical tools and observed dathents of econometric analysis as the basic econometric model, the generalized model, the system of simultaneous equations and	ta from economic read instruments for eco	ality. The cours onometric mode
Econometrics is bar covers basic instrun verification. 01LIP We study special pr	sed on economic theory and the relations between economic quantities are expressed by mathematical tools and observed dathents of econometric analysis as the basic econometric model, the generalized model, the system of simultaneous equations and Linear Programming	ta from economic read instruments for eco	ality. The cours onometric mode
Econometrics is bar covers basic instrum verification. 01LIP We study special pr nequalities).	sed on economic theory and the relations between economic quantities are expressed by mathematical tools and observed dathents of econometric analysis as the basic econometric model, the generalized model, the system of simultaneous equations and Linear Programming oblems about constrained extremum problems for multivariable functions (the function is linear and the constraint equations are	ta from economic read instruments for eco	ality. The cours onometric mode
Econometrics is bar covers basic instrum verification. 01LIP We study special pr nequalities). 01PGR1	sed on economic theory and the relations between economic quantities are expressed by mathematical tools and observed dathents of econometric analysis as the basic econometric model, the generalized model, the system of simultaneous equations and Linear Programming	ta from economic red d instruments for eco Z,ZK given by linear equa	ality. The cours onometric mode 3 ations and linea
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Econometrics is barcovers basic instrument of the control of the c	sed on economic theory and the relations between economic quantities are expressed by mathematical tools and observed dathents of econometric analysis as the basic econometric model, the generalized model, the system of simultaneous equations and Linear Programming oblems about constrained extremum problems for multivariable functions (the function is linear and the constraint equations are Computer Graphics 1 two-semester "Computer Graphics" course is devoted to the specifics of digital display devices spanning from history up to the state of the specific of digital display devices spanning from history up to the state of the specific of the specific of digital display devices spanning from history up to the state of the specific of the specific of digital display devices spanning from history up to the state of the specific of the s	ta from economic red d instruments for eco Z,ZK given by linear equa Z,ZK state of the art technoland explanation of the	ality. The cours sonometric mode 3 ations and linea 2 blogies. Furthe e correspondin
Econometrics is barcovers basic instrument of the control of the c	sed on economic theory and the relations between economic quantities are expressed by mathematical tools and observed dathents of econometric analysis as the basic econometric model, the generalized model, the system of simultaneous equations and Linear Programming oblems about constrained extremum problems for multivariable functions (the function is linear and the constraint equations are Computer Graphics 1 two-semester "Computer Graphics" course is devoted to the specifics of digital display devices spanning from history up to the sintal problems in 2D computer graphics is given together with their solutions. Focus is put on mathematical description of problems in the specific of the speci	ta from economic red d instruments for eco Z,ZK given by linear equa Z,ZK state of the art technoland explanation of the	ality. The cours sonometric mode 3 ations and linea 2 blogies. Furthe e correspondin
Econometrics is barcovers basic instrument of the control of the c	sed on economic theory and the relations between economic quantities are expressed by mathematical tools and observed dathents of econometric analysis as the basic econometric model, the generalized model, the system of simultaneous equations and between the basic econometric model, the generalized model, the system of simultaneous equations and between about constrained extremum problems for multivariable functions (the function is linear and the constraint equations are computer Graphics 1 two-semester "Computer Graphics" course is devoted to the specifics of digital display devices spanning from history up to the standard problems in 2D computer graphics is given together with their solutions. Focus is put on mathematical description of problems solvedge previously obtained in a variety of subjects available at FNSPE. The final part of the course covers the applications of	ta from economic red d instruments for eco Z,ZK given by linear equa Z,ZK state of the art technoland explanation of the	ality. The cours sonometric mode 3 ations and linea 2 blogies. Furthe e correspondin

graphics. Further, a well structured survey of fundamental problems in 3D computer graphics is given together with their solutions, from the description of a 3D scene to its realistic rendering. Focus is put on mathematical description of problems and explanation of the corresponding algorithms using knowledge previously obtained in a variety of subjects available at FNSPE. The algorithm implementation aspect such as data structures design etc. is also a matter of concern. In the last lecture, a number of theoretical concepts are demonstrated

01PRST	Probability and Statistics	Z,ZK	4
It is a basic course	e of probability theory and mathematical statistics. The probability theory is build gradually beginning with the classical definiti	on and continuing till th	e Kolmogorov
definition. The noti	ions as random variable, distribution function of random variable and characteristics of random variable are treated and basic	limit theorems are state	ed and proved.
On the basis of this	is theory the basic methods of mathematical statistics such as estimation of distribution parameters and hypothesis testing ar	e explained.	
18PJ	Programming in Java	Z,ZK	5
This course is deve	oted to the Java platform and to the development of the basic types of applications for this platform.		
18PW	Web environment and markup languages	KZ	2
The course introdu	uces students to fundamental principles and best practices for web design with respect to technical functionality, informationa	I value, readability and	usability.
18SBAK	Bachelor Seminar	Z	2
Seminar devoted to	to preparation of the bachelor's thesis and the presentation of the result. Students present their running results.		
01TKO	Theory of Codes	ZK	2
Algebraic methods	s used in error detecting and error correcting codes.	' '	
18INTA	Development of internet applications	KZ	4
The lectures provide	de an overview of modern technologies for the development of web applications. Students will learn basic web languages and	d concepts (HTML, URI	_, etc.) and the
will also be introdu	uced to relational database systems. The tutorials are dedicated to practical examples of building web applications, from the s	implest to more advance	ed. The course
is oriented primaril	ly towards backend technologies and using the Python languages, but covers also frontend frameworks and JavaScript.		
12UPF1	Introduction to Computational Physics 1	Z,ZK	2
Numerical simulati	ion and its role in physics, methodology of writing computer codes. Computer languages for physics. Numerical libraries and p	orogram libraries for phy	ysics. Compute
tools for scientific v	risualization. Computational fluid dynamics, hydrodynamic simulations, methods for discretization of Euler equations. High-perfo	ormance computing, par	allel computing
software for paralle	el simulations. Databases of scientific information, scientist evaluation, citation analysis.		
12UPF2	Introduction to Computational Physics 2	Z,ZK	2
Nonlinear models,	complex systems, chaotic systems, fractals and their applications in physics. Artificial intelligence methods: neural networks,	machine learning, gen	etic algorithms
expert systems an	nd their applications in physics. Quantum computing. Virtual reality.		
12ZMDT	Measurement and Data Processing	Z,ZK	2
Basic knowledge for	for the measurements and data processing and result interpretation: errors, precision, accuracy, normal distribution and its pro	opeties, data fitting, sep	aration of the
signal from the noi	ise.		

Name of the block: Compulsory elective courses

Minimal number of credits of the block: 0

The role of the block: PV

Code of the group: BSSPOLVEDY

Name of the group: BS - Social Sciences

Requirement credits in the group:

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

Credits in the group: 0

Note on the group:

Only one of these courses is obligatory.

Code	Name of the course / Name of the group of courses (in case of groups of courses the list of codes of their members) Tutors, authors and guarantors (gar.)	Completion	Credits	Scope	Semester	Role
00EKOT	Economy in Technology Jana Ková ová	Z	1	2+0		PV
00ETV	Ethics of Science and Technology Jakub Hají ek Jana Ková ová	Z	1	0+2	L	PV
00RET	Rhetoric Jana Ková ová Jana Ková ová	Z	1	0+2		PV
00UPRA	Introduction to Law Martin ech Jana Ková ová	Z	1	0+2		PV
00UPSY	Introduction to Psychology Jakub Hají ek Jana Ková ová	Z	1	0+2		PV

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

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

Code of the group: BSPJAZYKYZK Name of the group: BS P languages Requirement credits in the group:

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

Credits in the group: 0

Note on the group:

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

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04XSMZK	Spanish for Intermediate Students Examination	ZK	4		Z	PV
04XSPZK	Spanish for Advanced Students Examination	ZK	4		Z	PV
04XSZZK	Spanish for Beginners Examination V ra Šlechtová	ZK	3		L	PV
Characteristics of the	courses of this group of Study Plan: Code=BSPJAZYKYZK N	ame=BS P la	nguages			
04XAMZK En	glish for Intermediate Students Examination				ZK	4
The course content is the ex	ramination as given by the study plan. The examination covers the AM1, AM2, and AM	3 courses and co	nsists of two	parts - writ	ten (100 mir	n) and oral
(20-30 min). The student is ε	expected to master the AM syllabus and demonstrate the ability to apply their knowledge	ge gained in the t	hree English	courses.		
04XAPZK En	glish for Advanced Students Examination				ZK	4
The course content is the ex-	amination as given by the study plan. The student is supposed to demonstrate masterir	ng the AP3 syllabi	us and the at	oility to appl	y their knowl	edge obtained
in the three AP courses. The	examination consists of 2 parts - written (110 min) and oral (30 min) and includes also	o oral presentatio	n of a topic f	rom the stu	dent's field o	of study.
04XCESZZK Cz	ech for Foreigners – Beginners - Examination				ZK	4
1	ramination as given by the study plan. The examination consisting of a written and oral	part covers all th	e topics of th	1		es and can
	ul completion of all three courses. Detailed information is to be obtained from the teach	•			,_,	
	ech for Intermediate Students Examination				ZK	4
	camination as given by the study plan. The examination consisting of a written and oral	nart covers all th	a tonics of th			•
	mpletion of the 3 courses. Detailed information is to be obtained from the teacher.	part covers all tri	e topics of ti	IC OLGIVIT,2	2,3 0001363 6	and can only
	•			1	ZK	4
	ech for Foreign Students - Advanced Examination		- 4!6 41	1		•
	ramination as given by the study plan. The examination consisting of a written and oral	part covers all th	e topics of tr	16 CESP1,2	2,3 courses a	and can only
	mpletion of the 3 courses. Detailed information is to be obtained from the teacher.				71.6	
-	ench for Intermediate Students Examination			1	ZK	4
	on as given by the study programme. The whole French programme is ended with an e		ring the cont	ents of FM	1-FM3. The e	examination
	I part and is organized according to Examination Instructions, a document available or	the web.				
	ench for Advanced Students Examination			1	ZK	4
, ,	s ended with an examination covering the contents of FP1-FP3. The examination cons			I part and is	s organized a	according to
Examination Instructions, a c	document available on the web. Assessment of the presentation is included into the ex	amination grading	g.			
04XFZZK Fre	ench for Beginners Examination				ZK	3
The content is the examinati	on as given by the study plan. The course is terminated with an examination consisting	g of oral and writt	en part. The	examination	n is ruled by	the document
Instruction for examination. It	ts content covers the levels FZ1 - FZ5.					
04XNMZK Ge	erman for Intermediate Students Examination				ZK	4
The course content is the exa	amination as given by the study plan. The whole German for Intermediate Students Co	urse is completed	by an exam	ination cons	sisting of two	parts - written
and oral, which cover the cor	urses NM1 - NM3. The oral part follows after passing the written part successfully and	after obtaining th	e 04NM3 as	sessment. I	More detaile	d information
is to be obtained from the tea	acher.					
04XNPZK Ge	erman for Advanced Students Examination				ZK	4
	ramination as given by the study plan. The whole German for Advanced Students Cour	se is completed l	oy an examir	nation consi	sting of two	parts - written
	urses NP1 - NP3. The oral part follows after passing the written part successfully and					
information is to be obtained	from the teacher.					
	ssian for Intermediate Students Examination				ZK	4
04XRMZK Ru	issian for intermediate students Examination			1		
-	ramination as given by the study plan. The course is completed by taking a written and	oral examination	testing the k	knowledge a	and skills acc	quired in RM1
The course content is the ex			-	-		
The course content is the ex - RM3. Students are eligible	amination as given by the study plan. The course is completed by taking a written and		-	tructions by		•
The course content is the ex - RM3. Students are eligible 04XRPZK Ru	amination as given by the study plan. The course is completed by taking a written and for the oral examination only after a prior pass in RM3 and a successful written examination.	nation. Students a	are given ins	tructions by	the teacher.	4
The course content is the ex - RM3. Students are eligible 04XRPZK Ru The course content is the ex	amination as given by the study plan. The course is completed by taking a written and for the oral examination only after a prior pass in RM3 and a successful written examination for Advanced Students Examination	nation. Students a	testing the k	tructions by	the teacher. ZK and skills acc	4

04XRZZK	Russian for Beginners Examination	ZK	3
The course content is the	e examination as given by the study plan. The course is completed by taking a written and oral examination testing the know	vledge and skills a	cquired in RZ1
- RZ5. Students are elig	jible for the oral examination only after a prior pass in RZ5 and a successful written examination. Students are given instructi	ons by the teache	r.
04XSMZK	Spanish for Intermediate Students Examination	ZK	4
The course content is th	e examination as given by the study plan. SMZK examination consists of two parts - written and oral; to be eligible for the writte	n part, students w	ill have obtained
non-graded assessmen	t for course SM3.Oral examination follows the written part.		
04XSPZK	Spanish for Advanced Students Examination	ZK	4
The course content is the	e examination as given by the study plan. Examination SPZK consists of two parts, namely oral and written. The prerequisite	for admission to o	ral part is having
passed the written test.	Examination content is based on syllabi of courses SP1, SP2, and SP3 or on an individual study plan of the student.		
04XSZZK	Spanish for Beginners Examination	ZK	3
The course content is the	ne examination as given by the study plan. Examination consists of two parts - written and oral. Student can register for oral	examination only i	f he/she has
passed the written exar	nination 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: BSPAIPVV

Name of the group: BS P_AIPVB Optional courses

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

Credits in the group: 0 Note on the group:

	Name of the course / Name of the group of courses					
Code	(in case of groups of courses the list of codes of their	Completion	Credits	Scope	Semester	Role
	members) Tutors, authors and guarantors (gar.)					
12AUX	Administration of UNIX System	KZ	2	2+0	L	V
	Milan Ši or Milan Ši or Milan Ši or (Gar.) History of Physics 2	_	_			
02DEF2	Igor Jex Miroslav Myška Igor Jex (Gar.)	Z	2	2+0	L	V
18FV	Fulltext search Zuzana Pet í ková Zuzana Pet í ková	Z	2	2C	L	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
00MAM1	Essentials of High School Course 1 David B e	Z	1	0+1		V
00MAM2	Essentials of High School Math Course 2 Lukáš Heriban Severin Pošta Lukáš Heriban (Gar.)	Z	1	0+1		V
01SITE1	Computer Networks 1 Miroslav Minárik Miroslav Minárik (Gar.)	Z	2	1+1	Z	V
01SITE2	Computer Networks 2 Miroslav Minárik Miroslav Minárik (Gar.)	Z	2	1+1	L	V
18PROP	Practical training in programming Jakub Klinkovský Jakub Klinkovský (Gar.)	KZ	3	2C	Z	V
01PERI	Programming of Peripherals Devices Zden k ulík Zden k ulík (Gar.)	Z	2	2+0	Z	V
18PVP	Programming in Pascal Miroslav Virius Miroslav Virius (Gar.)	Z,ZK	4	2+2	L	V
18PPY2	Programming in Python 2 Jakub Klinkovský Jakub Klinkovský (Gar.)	Z	2	2S	Z	V
18PPY3	Programming in Python 3 Rudolf Pecinovský Jakub Klinkovský (Gar.)	Z	2	2C	L	V
18SVK	Student's Scientific Conference Kate ina Horaisová Kate ina Horaisová Ji í Mikyška (Gar.)	Z	1	5 dní		V
TV-1	Physical Education	Z	1		Z	V
TV-2	Physical Education	Z	1		L	V
TV-3	Physical education	Z	1	0+2	Z	V
TV-4	Physical education	Z	1	0+2	L	V
14TED	Creating Electronic Documents Aleš Materna Aleš Materna (Gar.)	Z	2	26C		٧
18UOA	Introduction into Object Oriented Architecture Rudolf Pecinovský Rudolf Pecinovský	Z,ZK	4	2P+2C	Z	V
01UOP	Introduction to Object Programming Zden k ulík Zden k ulík Zden k ulík (Gar.)	ZK	2	0+2		V
01UP1	Introduction to Probability 1 Jan Vybíral Jan Vybíral Jan Vybíral (Gar.)	Z,ZK	3	1P+1C		V

	Introduction to Probability 2 Milan Krbálek Milan Krbálek (Gar.) Z,ZK	3	1P+1C		V
12PYTH	Scientific Programming in Python Pavel Váchal, Jakub Urban Pavel Váchal Pavel Váchal (Gar.) Z	2	0+2	L	V
Characteristics of the	e courses of this group of Study Plan: Code=BSPAIPVV Name=BS P_AIPVI	3 Optiona	l courses		
	ministration of UNIX System		ŀ	(Z	2
	dministration of Unix operating system			,	
· ·	story of Physics 2		1	Z	2
•	echanics after Newton, Bernoulli's, Euler, Lagrange. Historical development of optics, corpuscular and vectrodynamics and electromagnetism, Faraday and Maxwell. Thermodynamics and its laws, statistical i		-	_	
, 0	ick and Einstein. Discovery of radioaktivity, structure of atom, atomic nucleus, Rutherford and Bohr. The				•
	of Nature and Universe of today.	may to made	.a. oo.g,, _	.oota.	pa. 110.00,
18FV Fu	lltext search			Z	2
- 1	ch" course is to inform students about methods and data structures for efficient search of strings in tex	t files and wit	1		searching tex
files in text databases.					
01JEPR Si	mple Compilers			Z	2
Lexical and syntax analysis	code generation, simple optimizations, development environments, reflection.		,	'	
04AKS Er	glish Conversation			Z	1
The course will develop the	student's communication skills acquired throughout their previous studies. It aims to improve all aspec	ts of oral com	munication.	The studen	t will develop
· · · · · · · · · · · · · · · · · · ·	communication situations and will master their communication strategy. They will also practise their list	-		er follow ar	nd participate
	will be trained to express their ideas clearly and according to current English usage, and become a mo	re confident s	<u> </u>		
	sentials of High School Course 1			Z	1
	sentials of High School Math Course 2			Z	1
Review of basics of high scl					
	mputer Networks 1		1	Z	2
- ·	nd present network (LAN, WAN, use the principles and technologies). Architecture of reference model I		-	-	
	ernet services - mail, remote access, www. Secure communication, tunneling. Directory services, certificated accessing the first services and the services and the services are serviced as a service of the services and the services are serviced as a service of the services and the services are serviced as a service of the services are serviced as a service of the services are services.				•
	ork security - firewalls (packet filters, proxies, gateways, NAT, DMZ), practical exercises. (According to t	ne interest - t			
· ·	emputer Networks 2	SO/OSI Note	1	Z	2
	nd present network (LAN, WAN, use the principles and technologies). Architecture of reference model I ernet services - mail, remote access, www. Secure communication, tunneling. Directory services, certifica		-	-	
	ork security - firewalls (packet filters, proxies, gateways, NAT, DMZ), practical exercises. (According to t				•
	actical training in programming			(Z	3
	understand advanced topics related to programming, code design and software project development.	Students will	1 -	- 1	-
=	vorld examples. Emphasis is put on the review of freely available software tools that can improve the pr				
		ogrammer s v	WOLK CHICICHIC	y and ensu	ure high quality
of the final source code.		ogrammer 3 v	WOLK CHICICHIC	y and ensu	ure high quality
of the final source code.	ogramming of Peripherals Devices	ogrammer s v		Z	ure high quality
of the final source code. 01PERI Pr				Z	
of the final source code. 01PERI Pr Memory organization, input	ogramming of Peripherals Devices		herals device	Z	
of the final source code. 01PERI Pr Memory organization, input 18PVP Pr This lecture is intended mai	ogramming of Peripherals Devices and output ports, computer bus. Software libraries for computer peripherals, 3D graphic libraries. Princ	iples of peripl	herals device	Z drivers.	2
of the final source code. O1PERI Pr Memory organization, input 18PVP Pr This lecture is intended mai programming language.	ogramming of Peripherals Devices and output ports, computer bus. Software libraries for computer peripherals, 3D graphic libraries. Princ ogramming in Pascal nly for students, with little or no experience in programming. It familiarizes the students with the basic c	iples of peripl	herals device Z, ogramming a	Z drivers. ZK nd with the	2 4 Pascal
of the final source code. O1PERI Pr Memory organization, input 18PVP Pr This lecture is intended mai programming language. 18PPY2 Pr	ogramming of Peripherals Devices and output ports, computer bus. Software libraries for computer peripherals, 3D graphic libraries. Prince ogramming in Pascal nly for students, with little or no experience in programming. It familiarizes the students with the basic of	iples of peripl	herals device Z, ogramming a	Z range of the state of the sta	2 4 Pascal
of the final source code. O1PERI Pr Memory organization, input 18PVP Pr This lecture is intended mai programming language. 18PPY2 Pr This course introduces stud	ogramming of Peripherals Devices and output ports, computer bus. Software libraries for computer peripherals, 3D graphic libraries. Prince ogramming in Pascal haly for students, with little or no experience in programming. It familiarizes the students with the basic comportant of the Python 2 hents to practical applications of the Python language in scientific as well as commercial fields. The cour	iples of peripl	herals device Z, ogramming a	Z range of the state of the sta	2 4 Pascal
of the final source code. O1PERI Pr Memory organization, input 18PVP Pr This lecture is intended mai programming language. 18PPY2 Pr This course introduces stud accompanied by a short detailed.	ogramming of Peripherals Devices and output ports, computer bus. Software libraries for computer peripherals, 3D graphic libraries. Prince ogramming in Pascal nly for students, with little or no experience in programming. It familiarizes the students with the basic compartment of programming in Python 2 ents to practical applications of the Python language in scientific as well as commercial fields. The count of a real-world application in the specific field.	iples of peripl	herals device Z, ogramming a	Z drivers. ZK nd with the	2 4 Pascal 2 ed topic is
of the final source code. O1PERI Pr Memory organization, input 18PVP Pr This lecture is intended mai programming language. 18PPY2 Pr This course introduces stud accompanied by a short det	ogramming of Peripherals Devices and output ports, computer bus. Software libraries for computer peripherals, 3D graphic libraries. Prince ogramming in Pascal nly for students, with little or no experience in programming. It familiarizes the students with the basic comparamming in Python 2 ents to practical applications of the Python language in scientific as well as commercial fields. The count of a real-world application in the specific field. ogramming in Python 3	iples of periplonate oncepts in progressions of the progression of the	herals device Z, ogramming a	Z drivers. ZK not with the Z ch presente	2 4 Pascal 2 ed topic is
of the final source code. O1PERI Pr Memory organization, input 18PVP Pr his lecture is intended mai programming language. 18PPY2 Pr This course introduces stud accompanied by a short der 18PPY3 Pr This advanced course is inte	ogramming of Peripherals Devices and output ports, computer bus. Software libraries for computer peripherals, 3D graphic libraries. Prince ogramming in Pascal nly for students, with little or no experience in programming. It familiarizes the students with the basic comparamming in Python 2 ents to practical applications of the Python language in scientific as well as commercial fields. The count of a real-world application in the specific field. ogramming in Python 3 ended for students who have basic experience with programming in Python and using its libraries. It intro	iples of periplonate oncepts in progressions of the progression of the	herals device Z, ogramming a	Z drivers. ZK not with the Z ch presente	2 4 Pascal 2 ed topic is
of the final source code. O1PERI Pr Memory organization, input 18PVP Pr his lecture is intended mai programming language. 18PPY2 Pr This course introduces stud accompanied by a short der 18PPY3 Pr This advanced course is inte anguage and modules they	ogramming of Peripherals Devices and output ports, computer bus. Software libraries for computer peripherals, 3D graphic libraries. Prince ogramming in Pascal nly for students, with little or no experience in programming. It familiarizes the students with the basic comparamming in Python 2 ents to practical applications of the Python language in scientific as well as commercial fields. The count of a real-world application in the specific field. ogramming in Python 3 ended for students who have basic experience with programming in Python and using its libraries. It intro are based on.	iples of periplonate oncepts in progressions of the progression of the	herals device Z, ogramming a nar where each	Z drivers. ZK not with the Z ch presente Z ded concepts	2 4 Pascal 2 ed topic is 2 s of the Pythor
of the final source code. O1PERI Pr Memory organization, input 18PVP Pr This lecture is intended main programming language. 18PPY2 Pr This course introduces stud accompanied by a short der 18PPY3 Pr This advanced course is integranguage and modules they	ogramming of Peripherals Devices and output ports, computer bus. Software libraries for computer peripherals, 3D graphic libraries. Prince ogramming in Pascal nly for students, with little or no experience in programming. It familiarizes the students with the basic coogramming in Python 2 ents to practical applications of the Python language in scientific as well as commercial fields. The count of a real-world application in the specific field. ogramming in Python 3 ended for students who have basic experience with programming in Python and using its libraries. It intro are based on. udent's Scientific Conference	iples of peripl oncepts in pro- se is a semin duces studen	herals device Z, ogramming a har where each	Z drivers. ZK not with the Z ch presente	2 4 Pascal 2 ed topic is
of the final source code. O1PERI Pr Memory organization, input 18PVP Pr This lecture is intended mai programming language. 18PPY2 Pr This course introduces stud accompanied by a short der 18PPY3 Pr This advanced course is inte anguage and modules they 18SVK St This is the active participation	ogramming of Peripherals Devices and output ports, computer bus. Software libraries for computer peripherals, 3D graphic libraries. Prince ogramming in Pascal oly for students, with little or no experience in programming. It familiarizes the students with the basic comparamming in Python 2 ents to practical applications of the Python language in scientific as well as commercial fields. The count of a real-world application in the specific field. ogramming in Python 3 ended for students who have basic experience with programming in Python and using its libraries. It introvate based on. udent's Scientific Conference on of the student in one of the approved student conferences. The list of such conferences is defined by	iples of periploncepts in proceeds in proceeds a seminoduces studen	herals device Z, ogramming a har where each	Z drivers. ZK not with the z ch presente z ded concepts	2 4 Pascal 2 ed topic is 2 s of the Pythor
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12PYTH	Scientific Programming in Python
146 111	Scientific Frogramming in Fymon

The aim of this course is to learn the fundamentals of the modern Python programming language with a focus on scientific computing. Emphasis is placed on effective solutions to real problems. The course is performed in an interactive form of practical exercises, whose topics can be tailored to the content of other subjects or student theses. Students are also involved in ongoing research. In the introductory part of the course, students learn the basic features of Python?from basic types to object oriented or functional programming. The greater part of the course focuses on specific features of Python for scientific programming. Presented are the main numerical libraries NumPy, SciPy and the Matplotlib graphics library. We show how to generate efficient code, how to combine Python with other languages, what tools are available.

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	Z	2	0+2	Z	V
04XAM2	English for Intermediate Students M2 V ra Šlechtová	Z	2	0+2	L	V
04XAM3	English for Intermediate Students M3 V ra Šlechtová	Z	2	0+2	Z	V
04XAP1	English for Advanced Students P1 V ra Šlechtová	Z	2	0+2	Z	V
04XAP2	English for Advanced Students P2 V ra Šlechtová	Z	2	0+2	L	V
04XAP3	English for Advanced Students P3 V ra Šlechtová	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 (Gar.)	Z	2	2S	Z	V
04XCESM1	Czech for Foreigners - Intermediate 1	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 V ra Šlechtová 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 V ra Šlechtová 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	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	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	Z	2	0+4	Z	V
04XFZ5	French for Beginners Z5 V ra Šlechtová	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 V ra Šlechtová Miloslava echová (Gar.)	Z	2	0+2	Z	V

U4ANP3	V ra Šlechtová		2	0+2		V
04XRM1	Russian for Intermediate Students M1 V ra Šlechtová Zhanna Isaeva (Gar.)	Z	2	0+2	Z	V
04XRM2	Russian for Intermediate Students M2 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+2	L	V
04XRM3	Russian for Intermediate Students M3 V ra Šlechtová	Z	2	0+2	Z	V
04XRP1	Russian for Advanced Students P1 V ra Šlechtová Zhanna Isaeva (Gar.)	Z	2	0+2	Z	V
04XRP2	Russian for Advanced Students P2 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+2	L	V
04XRP3	Russian for Advanced Students P3 V ra Šlechtová	Z	2	0+2	Z	V
04XRZ1	Russian for Beginners Z1 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+4	L	V
04XRZ2	Russian for Beginners Z2 V ra Šlechtová Zhanna Isaeva (Gar.)	Z	2	0+4	Z	V
04XRZ3	Russian for Beginners Z3 Zhanna Isaeva Zhanna Isaeva (Gar.)	Z	2	0+4	L	V
04XRZ4	Russian for Beginners Z4 V ra Šlechtová	Z	2	0+4	Z	V
04XRZ5	Russian for Beginners Z5 V ra Šlechtová	Z	2	0+4	L	V
04XSM1	Spanish for Intermediate Students M1 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 V ra Šlechtová	Z	2	0+2	Z	V
04XSP1	Spanish for Advanced Students P1 V ra Šlechtová 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 V ra Šlechtová	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 V ra Šlechtová 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 V ra Šlechtová	Z	2	0+4	Z	V
04XSZ5	Spanish for Beginners Z5 V ra Šlechtová	Z	2	0+4	L	V
Characteristics of the	courses of this group of Study Plan: Code=BSPJAZYKYZAP	Name=BS P	iazvkv za	n		
	glish for Intermediate Students M1		, , <u>,</u>	<u> </u>	Z	2
	tudents who have successfully completed the full secondary school English language	e course at least at	the A2 level	of the Com		
	(CEFR). It provides an introduction into English for Specific and Academic Purposes					
professional oral and written	communication situations. Thus it covers topics related to the student's life and need	ds as well as topics	of subtechi	nical interest	. Attention is	also paid to
extending the knowledge of	grammar issues used in EAP.					
04XAM2 En	glish for Intermediate Students M2				Z	2
-	e student to have completed the AM1 course. It develops their skills for work with sub	technical texts. foc	usina also m	nore on spec		
·	SP and EAP (e.g., definition, existence and classification of phenomena, object descri		-		-	
revision is included.	2. 2 (2.g., sommon, sastenes and substitution of prioritorial, object descrip			- 94.404 1111		,, g. a
	alich for Intermediate Students M2				Z	2
	glish for Intermediate Students M3	tontion is!-! t- !		 	ı	
•	Is that enable students to cope with features typical of professional style. Increasing at	•			=	
	al texts. Great emphasis is placed on distinguishing different levels of formal and info					
equivalents. The course also	includes studying abstracts and rules for writing them as well as basic rules for prepared	paring and giving a	short preser	ntation on a	chosen topic	related to the
student's field						

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German for Intermediate Students M3 V ra Šlechtová

German for Advanced Students P1 V ra Šlechtová Miloslava echová (Gar.)

German for Advanced Students P2

Miloslava echová Miloslava echová (Gar.)

German for Advanced Students P3

04XNM3

04XNP1

04XNP2

04XNP3

student's field.

English for Advanced Students P1

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

The course is designed for students who have successfully completed the full secondary school English language course (at least the B1 level of the Common European Framework of Reference for Languages - CEFR). It provides an introduction into English for Specific and Academic Purposes (ESP, EAP), i.e., into the fundamentals of vocabulary, functions, grammar, and style typical of professional oral and written communication situations (fundamentals of terms in mathematics and physics, definitions, graph descriptions, etc). It also covers professional oral and written communication on topics related to the undergraduate's life and needs. It develops skills for free professional writing (writing a CV, letter of application,

04XAP2 English for Advanced Students P2 The AP2 course is based on AP1, thus extending the student's skills for working with subtechnical texts, and even with professional texts of chosen the students' needs it concentrates on chosen grammar topics, but mainly intends to develop understanding of syntactic structures and typical rheto		=
of descriptions, and, if possible, a case study). Increasing emphasis is placed on the undergraduate's independent work with and reading of linguist. The course extends the student's subtechnical vocabulary, and includes fundamental notions of chosen branches of science. It is focused on formal paragraph structure, linking, cohesion and coherence in texts.	=	-
04XAP3 English for Advanced Students P3	Z	2
The AP3 course is based on AP2 and expects the student to work without any guidance with authentic professional materials and to interpret the text. communication skills and functions (e.g., expressing an opinion, agreement, and objections; taking part in discussion, note-taking; summarizing, wri	_	
also preparing a project on a given or chosen topic and presenting it. The course places emphasis on distinguishing levels of formal and informal lar	,	
communication.	.guago zour oro	ara milion
04XCESZ1 Czech for Foreigners - Beginners 1	Z	2
The course is designed for students on the English programme. Students will become acquainted with the main characteristics of Czech (phonetic at	nd grammar featur	es) and they will
acquire basic language and speaking skills. The course focuses on pronounciation exercises, simple social phrases, and oral and written communic		
communicative situations. The course covers roughly lessons 1-5 in "Chcete mluvit esky" by H. Remediosová and E. echová. At the end of the cou	rse, the students v	vill have reached
A1 (CEFR) approximately. 04XCESZ2	Z	2
04XCESZ2 Czech for Foreigners - Beginners 2 The language and communication competences acquired in CESZ1 are further developed. Students extend their knowledge of Czech declension an		_
communication of frequent topics. The course covers roughly lessons 6-10 in "Chcete mluvit esky" by H. Remediosová and E. echová. At the end		=
have reached A2 (CEFR) approximately.	, , , , , , , , , , , , , , , , , , , ,	
04XCESZ3 Czech for Foreigners - Beginners 3	Z	2
The course further develops the language and communication competences acquired in the XCESZ1 and XCESZ2 courses. The teaching focuses of	on building up bas	ic vocabulary,
correct pronunciation, deepening grammar, including grammar practice, and introducing Czech culture. Students are asked to produce simple texts		
of dialogue. They also practise understanding texts in terms of main ideas or looking for specific details in texts. The course covers roughly lessons		
04XCESM1 Czech for Foreigners - Intermediate 1	Z	2
The course is focused on correct pronunciation, important morphological phenomena, prepositional phrases, and verb forms as well as on extending the social situations.	ie student s vocat	bulary for various
04XCESM2	Z	2
The course develops the topics covered in CESM1 and is then focused on more difficult grammar phenomena. It practices writing, speaking, and re		_
in understanding common abbreviations, abbreviated words, and mathematical terms and formulas.	J	
04XCESM3 Czech for Foreigners - Intermediate 3	Z	2
The last course revises morphological topics covered earlier and extends the student's knowledge of more difficult language phenomena. It is especially	cially focused on s	stylistics and
lexicology and on developing the student's writing skills.		
04XCESP1 Czech for Foreign Students - Advanced 1	Z	2
The prerequisite of the course is very good knowledge of the Czech language, i.e., communicative competences at least at level B2 of the Common E It is focused partly on revision of standard language structures, but mainly on practising more complex grammatical structures typical of the style of	-	
basics of functional style of engineering and professional communication, both in spoken and written form. The topics include University Studies and		•
includes communication with teachers and faculty administrators.		,
04XCESP2 Czech for Foreigners - Advanced 2	Z	2
This course extends the student's knowledge acquired in CESP1 and focuses on difficult language phenomena. It practises working with technical acquired in CESP1 and focuses on difficult language phenomena.	and specialist texts	s placing greater
emphasis on individual work.		
04XCESP3 Czech for Foreigners - Advanced 3	Z	2
The course develops the student's knowledge from CESP2. It includes working with authentic specialist materials, their interpretation and presentati student's project. Writing skills necessary for professional communication are trained.	on, and, finally, pre	esentation of the
04XFM1 French for Intermediate Students M1	Z	2
French - intermediate FM The objective of this three-semester course is to improve and further develop communication in the French language in both	1	
will be able to communicate in social interaction and in academic, scientific and professional environment. They will be able to use the language to t	ransmit general ar	nd technical
information and to solve problems. FM1 The course builds on and further develops linguistic competence acquired at secondary school. It revises, s	, ,	0 0
skills gained in previous study. The following topics are covered: University studies in our country and in France, writing of transactional letters, CV, pe		
to an advert, French culture and geography, Paris. Topics of specialization: mathematics, physics. Reading technical and popular science texts, work 04XFM2 French for Intermediate Students M2		exts.
04XFM2 French for Intermediate Students M2 Course FM2 builds on FM1. Linguistic structures and competence acquired in previous study are systemized and expanded. Reading popular science	Z Z	
and scientific language (passives, nominalization, word formation). Topics: physics, power engineering, environment, Internet, success of French sci		
scientists, artists and architects. Description of an object, device, shapes, dimensions, material.		
04XFM3 French for Intermediate Students M3	Z	2
The course is focused on improvement and further development of linguistic competence acquired during the follow-up courses. Syntactic structures	•	
participle structures, compound tenses). Text summaryStudents prepare a written paper which will be delivered in form of an oral presentation in-		
field of students' future specialisation or to their interest and generally covers a technical /applied science topic. It is not a translation but a creative v and one's own knowledge/experienceLonger monologues on topics /situations set for the examination are prepared. Text structure, cohesion and	-	n French articles
04XFP1 French for Advanced Students P1	Z	2
FP advanced course The objective of this three-semester course is to improve and further develop communication in the French language in both w	1	
be able to communicate in social interaction and in academic, scientific and work environment. They will be able to use the language to transmit gen	eral and technical	information and
to solve problems. FP1 The course builds on and further develops linguistic competence acquired at secondary school. Difficult grammar topics are r	•	
passé composé-imparfait, pronouns. The following specific topics are covered: University studies in our country and in France, writing of transaction	=	
request, answer to an advert, environmental issues, success of French science and technology, chosen topics from French regional culture, Paris. Top internet, physics, chemistry. Reading of technical and popular science texts, further work with these texts and interpretation.	ilos ui specializatio	ni. mathematics,
04XFP2 French for Advanced Students P2	Z	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 of	1	
technical and scientific communication are stressed (passive voice, nominalization, word formation).		- ·
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		•
skill - translation of shorter texts (both from and into the language). Writing of a paper and making oral presentation in-class. The paper generally co	vers a technical /a	ipplied science
topic. It is a creative work compiled from 3 French sources. Preparation of several set topics for oral examination.		

04XFZ1	French for Beginners Z1	Z	2
•	e objective of this 5-level course is to be able to communicate in French orally and in writing in situations of everyday life , in a Inch for specific / technical communication and reading of popular science and scientific texts. FZ1 The objective is to be able		
level, actively using the	knowledge of chosen elementary language. The contents is roughly outlined by lessons 1 - 7 of the textbook Pravda - Pravdo	ová, French for be	ginners
	te ky). It is extended with situations of communication and functions from the textbook Espaces I, lessons 1-4: introductions ople instructions and questions. Special attention is paid to pronunciation. Spelling is explained in connection with pronunciat	•	
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		
•	dditional topics and skills are filled in from the textbook Espaces I, lesson 1 - 5 (introductions, invitation, welcoming, agreem 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. Opcome	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 uations 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.	iioimation and iod	a ao part or
04XFZ4	French for Beginners Z4	Z	2
	FZ3. Basic linguistic knowledge and skills are further developed. Oral communication and reading skills are practiced. The control of the control of the second stills are practiced. The control of the second of t		
	ourse covers generals and specific topics: health- illness, sport, free time, environment, study, travelling in France, Paris, sho		٠ ١
	now to write CV, application, topics in mathematics, reading physics - mechanics, informatics, internet.		
04XFZ5	French for Beginners Z5 FZ4 are further developed, as well as technical language. Students prepare a paper on a chosen popular science topic. The	Z	n the class The
•	ered by lessons 24 - 26 of the textbook: Pravda-Pravdova, French for Beginners, and is complemented from other materials.		
	h science and technology, information about France. Grammar is systemized and complemented with syntax (subordinate classes)	auses, typical con	junctions,
subjunctive clauses, ger 04XNM2	und, passive. German for Intermediate Students M2	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	٠,	
	mation and reading aloud, and appropriate language for various purposes in oral and written communication. The course systen or professional discourse (participles, relative clauses).	natically revises ot	her grammatical
04XNM1	German for Intermediate Students M1	Z	2
-	rse is to level off the students' skills in the German language. The course focuses on revision of more difficult phenomena and		_
· · · · · · · · · · · · · · · · · · ·	es (e.g. importance of verb prefixes). In the lexical part, it covers topics referring to higher education in both the Czech Reput	' -	
	gether with all necessary expressions and phrases, expressions and phrases needed to chemists, mathematicians, physicist communication on related topics and is aimed at correct pronunciation, grammatical correctness and understandability.	is, and the fundan	ieritais or 11
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 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	•	
· · · · · ·	or professional discourse (participles, relative clauses).		
04XNP1	German for Advanced Students P1	Z	2
	od grammar knowledge, extended general vocabulary, and good communication skills acquired at secondary school to be le en focused on working with technical and scientific texts and practising reading techniques (skimming, scanning, reading for		
J	ructures necessary for understanding a subtechnical text (passive voice, participles, participle structures) and it also focuses on	practical everyday	communication,
i.e., telephoning.	Cormon for Advanced Students D2	7	2
04XNP2 The course develops the	German for Advanced Students P2 students' skills in working with professional scientific texts (understanding, summarising, note-taking, interpreting) while extend	Z ding their general a	2 and subtechnical
, ,	duces mathematical expressions and texts of nuclear power engineering. Increasing emphasis is placed on understanding and	I practising formal	communication,
	V, letter of application, interview, scholarship), and more complex grammatical structures (i.e., subjunctive, indirect speech).	7	2
04XNP3 The course consists of 3	German for Advanced Students P3 Brain parts (general communicative situations, grammar and technical topics). Students will develop their vocabulary in a variations.	Z ariety of less comr	
(traffic problems and car	accidents, accident report, filling in a form, complaints). Based on presentations and technical and subtechnical texts, the vertical accidents are considered as a constant of the constant o	ocabulary range ir	n fields such as
	ng, the environment, computer science, and car technology, will also be extended. Only authentic professional texts are used rocess 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 Ger		ie course also irici	uues translation
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		•
•	nmunication in everyday situations (introductions, socializing, greetings, shopping for food and objects of everyday need, ask Imar structures (verbal and nominal forms, irregular verbs, pronouns). The initial knowledge corresponds to the achievement		· /·
contents and scope of the	ne 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
04XRM3	the RM1 course, its contents and scope correspond roughly to RZ4, however, for half of the time allotted in the timetable. Russian for Intermediate Students M3	Z	2
	knowledge and skills acquired in RM1 and RM2 and its contents and scope are roughly at the same level as those of RZ5, he		_
in the timetable.			
04XRP1 The entrance requireme	Russian for Advanced Students P1 In the course is to achieve the B1 CEFR level. The objective of the course is revision of standard language structures, presented in the course is revision of standard language structures, presented in the course is revision of standard language structures.	Z acticing more diffic	2 cult grammar
•	in tor the course is to achieve the BT CEPK level. The objective of the course is revision of standard language structures, pro- ig the fundamentals of technical language and training writing skills.	actioning more diffic	on graninal
04XRP2	Russian for Advanced Students P2	Z	2
	RP1. It expands grammatical structures important for understanding technical texts (verbal adjectives, participles, passives, ton independent oral and written communication.	verb aspects, spe	cific syntactic
on dotaros). On ess is pu	Contribution of the terror to the minute of the minute of the contribution of the cont		

04XRP3			
-	Russian for Advanced Students P3	Z	2
	n RP2 and is mainly focused on working with technical and scientific texts (reading comprehension, oral and written paraphras revious knowledge of general language at secondary level (listening, reading, correct communication in everyday situations).	-	
	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		-
technical topics.		•	
04XRZ1	Russian for Beginners Z1	Z	2
The course represents	the first stage of the five-semester programme, its final aim being reading and understanding professional texts written in Russ	ı sian. Thus it begin	s with mastering
	or both reading and writing skills) and fundamentals of grammar necessary for everyday communication (listening and speak		
a short text with marke	d stress, understand its contents and summarize it.		
04XRZ2	Russian for Beginners Z2	Z	2
The second semester	f the programme is designed to teach skills for basic communication in everyday situations and for reading easy and short su	ubtechnical texts.	Students will be
	sing short sentences and appropriate structures, and read aloud with confidence a short text without marked stress. They will	also develop their	vocabulary and
	tical 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
	RZ2 and includes further everyday topics, develops understanding of short compact texts on new subtechnical topics (for train	•	•
	duces new grammar. Students will be trained to distinguish intonation patterns while listening to spoken language. They will b ress their opinion. Writing skills will be trained on guided writing tasks and note-taking.	e able to respond	so as to be
		7	
04XRZ4	Russian for Beginners Z4	Z	2
	RZ3. It improves and expands the knowledge of general language in all four skills (reading and understanding longer texts with tion in everyday situations, writing longer texts). Students are trained to use grammar structures effectively (e.g., irregular verl		-
	mperatives, 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.	•	
	mation from the timetable, learn about Russian holidays and typical meals.	3, ,,	
04XRZ5	Russian for Beginners Z5	Z	2
-	student to have completed RZ4. It concentrates predominantly on reading skills (working with professional texts, i.e. understar	nding, extracting a	nd summarizing
•	cialized text) and speaking, and to a certain extent, writing about the professional information obtained by reading the texts. Co		-
everyday topics. Study	ng grammar is based on professional and technical texts and only includes items typically used in professional communication	n (verbal adjective	es, participles,
passive voice). Studen	s develop their technical and economic vocabulary, and are also trained in some professional skills (writing a CV, polite reque	est, etc.)	
04XSM1	Spanish for Intermediate Students M1	Z	2
-	for students whose competence is at level B1 of CEFR, i.e. those who studied Spanish in the secondary school. The 3-seme		=
	tention to further grammar topics (e.g., perífrasis verbales, futuro imperfecto, direct object and indirect object pronouns, nega		•
	and oral communication on a given everyday or easy subtechnical topic, for which the students are trained by reading texts of	r listening to them	
04XSM2	Spanish for Intermediate Students M3	Z	2
•	e students' knowledge from the previous course (SM1). Students are gradually acquainted with fundamentals of Spanish for	specific purposes	in order to be
	alized texts on the Internet.		
04XSM3	Spanish for Intermediate Students M3	Z	2
	supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of acade The read in Spanish and search for information of their specialization or field of interest. Students will use the information to write s		=
•	net in Spanish and search for information of their specialization of field of interest. Students will use the information to write some, general Spanish course based on course books, covers presentations and, finally, a written and oral examination.	siloit articles and :	summanes. The
04XSP1	Spanish for Advanced Students P1	Z	2
	n more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communicati		
of CEFR.	Thirte difficult grantifial topics, revision of vocabulary, basics of opanism of specific purposes as well as written confinduncati	ion. Course prefet	quisites, level Dz
04XSP2	Spanish for Advanced Students P2		
		7	2
	1 •	Z	2 on independent
Course SP2 is the sec	and part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and system	_	
Course SP2 is the sec written communication	ond part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and syl	ntax and focuses	on independent
Course SP2 is the sec written communication 04XSP3	ond part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and sylloping spanish for Advanced Students P3	ntax and focuses	on independent
Course SP2 is the sec written communication 04XSP3 Course SP3 is the fina	ond part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and syl	ntax and focuses	on independent
Course SP2 is the sec written communication 04XSP3 Course SP3 is the fina based on what student	Spanish for Advanced Students P3 part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and sylving part of the advanced Spanish course. It is based on texts chosen by the students according to their future specialization. It is swill need in their career.	ntax and focuses Z focused on writter	on independent 2 communication
Course SP2 is the sec written communication 04XSP3 Course SP3 is the fina based on what student 04XSZ1	Spanish for Advanced Students P3 part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and sylving part of the advanced Students P3 part of the advanced Spanish course. It is based on texts chosen by the students according to their future specialization. It is for swill need in their career. Spanish for Beginners Z1	ntax and focuses Z focused on writter	on independent 2 a communication 2
Course SP2 is the sec written communication 04XSP3 Course SP3 is the fina based on what student 04XSZ1 Course SZ1 is the first	Spanish for Advanced Students P3 part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and sylvanish for Advanced Students P3 part of the advanced Spanish course. It is based on texts chosen by the students according to their future specialization. It is for swill need in their career. Spanish for Beginners Z1 stage of the five-semester programme of Spanish studies; during the first stage the students will master phonetics and fundaments.	ntax and focuses Z focused on writter Z nental grammar st	on independent 2 a communication 2
Course SP2 is the sec written communication 04XSP3 Course SP3 is the fina based on what student 04XSZ1 Course SZ1 is the first be able to communicat	Spanish for Advanced Students P3 part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and sylvanish for Advanced Students P3 part of the advanced Spanish course. It is based on texts chosen by the students according to their future specialization. It is for swill need in their career. Spanish for Beginners Z1 stage of the five-semester programme of Spanish studies; during the first stage the students will master phonetics and fundame at an elementary level on topics of everyday life. They will acquire and extend fundamental vocabulary of general Spanish a	ntax and focuses Z focused on writter Z nental grammar st nd will develop it.	2 communication 2 ructures and wi
Course SP2 is the sec written communication 04XSP3 Course SP3 is the fina based on what student 04XSZ1 Course SZ1 is the first be able to communicat 04XSZ2	Spanish for Advanced Students P3 part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and syndrom part of the advanced Students P3 part of the advanced Spanish course. It is based on texts chosen by the students according to their future specialization. It is fis will need in their career. Spanish for Beginners Z1 stage of the five-semester programme of Spanish studies; during the first stage the students will master phonetics and fundamental at an elementary level on topics of everyday life. They will acquire and extend fundamental vocabulary of general Spanish a Spanish for Beginners Students Z2	ntax and focuses Z focused on writter Z nental grammar st nd will develop it.	2 communication 2 ructures and wi
Course SP2 is the sec written communication 04XSP3 Course SP3 is the fina based on what student 04XSZ1 Course SZ1 is the first be able to communicat 04XSZ2 Course SZ2 is based of	Spanish for Advanced Students P3 part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and sylvanish for Advanced Students P3 part of the advanced Spanish course. It is based on texts chosen by the students according to their future specialization. It is for swill need in their career. Spanish for Beginners Z1 stage of the five-semester programme of Spanish studies; during the first stage the students will master phonetics and fundame at an elementary level on topics of everyday life. They will acquire and extend fundamental vocabulary of general Spanish a	ntax and focuses Z focused on writter Z nental grammar st nd will develop it. Z exis will be choser	2 communication 2 ructures and wi
Course SP2 is the sec written communication 04XSP3 Course SP3 is the fina based on what student 04XSZ1 Course SZ1 is the first be able to communicat 04XSZ2 Course SZ2 is based of them to understand shi	Spanish for Advanced Students P3 part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and sylvanish for Advanced Students P3 part of the advanced Spanish course. It is based on texts chosen by the students according to their future specialization. It is for will need in their career. Spanish for Beginners Z1 stage of the five-semester programme of Spanish studies; during the first stage the students will master phonetics and fundamental at an elementary level on topics of everyday life. They will acquire and extend fundamental vocabulary of general Spanish a Spanish for Beginners Students Z2 n course SZ1, and expects students to develop and extend the knowledge and skills acquired so far. Grammar structures and leading to the first stage the students of the students of the students and stage of the students are course.	ntax and focuses Z focused on writter Z nental grammar st nd will develop it. Z exis will be choser	2 communication 2 ructures and wi
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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	Z	1
00MAM2	Essentials of High School Math Course 2	Z	1
	Review of basics of high school mathematics.		
00PT	Preparatory Week	Z	2
00RET	Rhetoric	Z	1
as well as to its	used on the acquisition of speech and voice techniques and on the rules of correct pronounciation. The course is also devoted to the nonverbal aspects. Stylistics exercises, strategies for coping with stage-fright and a short excursion into the history of rhetoric are an		
00UPRA	Introduction to Law	Z	1
00UPSY	Introduction to Psychology	Z	1
01ANB3	Calculus B 3	Z,ZK	8
Expansion, Taylo equation and exact side, Euler different of set, completenes series and their co	quences and series - convergence range, criteria of uniform convergence, continuity, limit, differentiation and integration of functional r's theorem. 2. Ordinary differential equations - equations of first order (method of integration factor, equation of Bernoulli, separation equation) and equations of higher order (fundamental system, reduction of order, variation of parameters, equations with constant coetial equation). 3. Metric spaces - metric, norm, scalar product, neighborhood, interior and exterior points, boundary point, isolated and soft space, Hilbert spaces. Orthogonal polynomials. Complete orthogonal systems. 4. Fourier series - expansion of functions into Fourier products. 5. Differential calculus of functions of several variables - limit, continuity, partial and directional derivative, gradient, total of Taylor series, elementary terms of vector analysis, Jacobi matrix. 6. Functions defined implicitly by one or several equations.	n of variables, home fficients and special d non-isolated poin er series, trigonome derivatives and tangs.	ogeneous al right-hand it, boundary etric Fourier gent plane,
01ANB4	Calculus B 4	Z,ZK	6
	o et funkcí více prom nných a funkcionálních vektor . [2] Funkce zadané implicitn . [3] Taylorovy ady funkce více prom nných. [4] f kartézské soustavy sou adnic. [5] Lokální, vázané a globální extrémy funkce více prom nných. [6] Základy teorie míry a obrys konstr	-	
	unkce více prom nných - Riemann v a Lebesgue v integrál, základní vlastnosti, Fubiniova v ta, v ta o substituci. Leviho a Lebesgu derivace integrálu podle parametru. [8] Integrály po k ivkách a plochách. Integrální v ty.		
01DIM1	Discrete Mathematics 1	Z	2
04 DIMO	The seminar is devoted to elementary number theory and applications. It includes individual problem solving.	7	_
01DIM2	Discrete Mathematics 2 The seminar is devoted to recurrence relations. It includes individual problem solving.	Z	2
01JEPR	Simple Compilers	Z	2
041.41	Lexical and syntax analysis, code generation, simple optimizations, development environments, reflection.	7	0
01LAL 1. Vector space. 2	Linear Algebra 1 Linear dependence and independence. 3. Basis and dimension. 4. Subspaces of vector spaces. 5. Linear mappings. 6. Matrices of I	Z inear mappings. 7.	2 Frobenius
01LAL2	theorem.	7 71/	4
	Linear Algebra 2 se matrix and operator. 2. Permutation and determinant. 3. Spectral theory (eigenvalue, eigenvector, diagonalization). 4. Hermitian an	Z,ZK d quadratic forms.	4 5. Scalar
product and orthog	onality. 6. Metric geometry. 7. Riesz theorem and adjoint operator. Outline of the exercises: 1. Methods for calculation of inverse matr	ices. 2. Methods of	calculation
of determinants.	3. Calculation of eigenvalues and eigenvectors. 4. Hermitian and quadratic forms. Canonical form. 5. Scalar product and orthogonality	y. Calculation of or	thogonal
	complements. 6. Geometry – exercises and examples. 7. Adjoint operators.		
01LALZ	Linear Algebra 1, exam	ZK	2
01LIP	Linear Programming	Z,ZK	3
We study special pr	roblems about constrained extremum problems for multivariable functions (the function is linear and the constraint equations are given	by linear equation	s and linear
OANAANI	inequalities).	Z	4
01MAN	Calculus 1 Basic calculus (real analysis, functions of one real variable, differential calculus).		4
01MAN2	Calculus 2	Z,ZK	8
1. Continuation of	differential calculus: Taylor's Polynomials, Taylor's formula 2. Infinite series: criteria of convergence, operations on series, absolute a	nd conditional conv	ergence 3.
Real and complex p	power series, the Cauchy-Hadamard theorem, expansion of function into power series, summation of infinite series. 4. Theory of integrals (Riemann definition), techniques of integrals and explication of integrals. Constrained Riemann integrals	als: primitives, defi	inite integral
0414417	(Riemann definition), techniques of integration and application of integrals, Generalized Riemann integral	71/	4
01MANZ	Calculus 1, exam	ZK	2
01PERI Memory or	Programming of Peripherals Devices ganization, input and output ports, computer bus. Software libraries for computer peripherals, 3D graphic libraries. Principles of perip	Z Therals device drive	
01PGR1	Computer Graphics 1	Z,ZK	2
The first part of the	two-semester "Computer Graphics" course is devoted to the specifics of digital display devices spanning from history up to the state of		ll .
=	ental problems in 2D computer graphics is given together with their solutions. Focus is put on mathematical description of problems and expenses and expenses are supported by the computer of problems and expenses are supported by the computer of problems and expenses are supported by the computer of problems and expenses are supported by the computer of problems and expenses are supported by the computer of problems and expenses are supported by the computer of problems and expenses are supported by the computer of problems are	-	
algorithms using k	nowledge previously obtained in a variety of subjects available at FNSPE. The final part of the course covers the applications of com the process of authoring scientific documents and presentations.	puter graphics app	roaches in
01PGR2	Computer Graphics 2	Z,ZK	2
	of the two-semester "Computer Graphics" course begins with a brief introduction to signal theory in the context of aliasing - a phenon		
=	a well structured survey of fundamental problems in 3D computer graphics is given together with their solutions, from the description		
-	put on mathematical description of problems and explanation of the corresponding algorithms using knowledge previously obtained in		
at FNSPE. The algo	prithm implementation aspect such as data structures design etc. is also a matter of concern. In the last lecture, a number of theoretic	al concepts are de	emonstrated
	using Blender, an open-source 3D modeling and rendering software instrument.		

01PRST	Probability and Statistics	Z,ZK	4
It is a basic course	e of probability theory and mathematical statistics. The probability theory is build gradually beginning with the classical definition and of	continuing till the K	olmogorov
	ons as random variable, distribution function of random variable and characteristics of random variable are treated and basic limit the		and proved.
	e basis of this theory the basic methods of mathematical statistics such as estimation of distribution parameters and hypothesis testir	ig are explained.	
01PSL	LaTeX - Publication Instrument	Z	2
	The course is devoted to the basics and facilities of computer typography, particularly to the system LaTeX		
01SITE1	Computer Networks 1	Z	2
_	history and present network (LAN, WAN, use the principles and technologies). Architecture of reference model ISO/OSI. Network prot	· · · · · · · · · · · · · · · · · · ·	
	tions. Internet services - mail, remote access, www. Secure communication, tunneling. Directory services, certificates, certification authorates. Network accurate figure provides grategies. NAT DNZ) programs (According to the internet, the control of the contro		
	actice. Network security - firewalls (packet filters, proxies, gateways, NAT, DMZ), practical exercises. (According to the interest - the se Computer Networks 2	7	
01SITE2	Computer Networks 2 history and present network (LAN, WAN, use the principles and technologies). Architecture of reference model ISO/OSI. Network prof	tocals practical ov	2
_	tions. Internet services - mail, remote access, www. Secure communication, tunneling. Directory services, certificates, certification author	· · · · · · · · · · · · · · · · · · ·	
	actice. Network security - firewalls (packet filters, proxies, gateways, NAT, DMZ), practical exercises. (According to the interest - the se		
01TKO	Theory of Codes	ZK	2
	Algebraic methods used in error detecting and error correcting codes.		_
01UOP	Introduction to Object Programming	ZK	2
	Object oriented programming languages. Object oriented programming libraries for graphics, databases and distributed system	ms.	
01UP1	Introduction to Probability 1	Z,ZK	3
1.Random trial w	with finite set of possible results, classical probability, independent random events 2. Probability and combinatorics 3. Probability and ge	ometry, Bertrand's	s paradox
4.Conditional prol	pability, Bayes' theorem, medical diagnosis, Simpson's paradox 5.Random variable with discrete state space, its distribution and mea	n value 6.Problem	s involving
	the calculation of mean value 7.Probabilistic method in graph theory 8.Random algorithms, Morris algorithm and its variant	1	
01UP2	Introduction to Probability 2	Z,ZK	3
	al continuous random variable and its statistical description. 2. Distribution function and probability density. 3. Axiomatic introduction of		
measure theory. 4.	Numerical characteristics of continuous random variables. 5. Selected variants of continuous distributions and their characteristics. 6.	Elementary metho	ds for point
000554	estimations. 7. Generating pseudorandom numbers from the selected distribution.	7	
02DEF1	History of Physics 1	Z	2 Physics in
	ace in the system of sciences. The relationship of man and nature. Natural sciences in ancient Orientand Greece, Greek natural philo Archimed. Arabic science, European science in Middle Ages. Renaissance - da Vinci, Giordano Bruno. Copernicus, Kepler, Galileo, F	-	-
ricienistic period,	as experimental science. Newton and his work.	laygens. The birth	or priyotos
02DEF2	History of Physics 2	7	2
-	f classical mechanics after Newton, Bernoulli's, Euler, Lagrange. Historical development of optics, corpuscular and wave approach. E	lectricity and mag	
	vanism, electrodynamics and electromagnetism, Faraday and Maxwell. Thermodynamics and its laws, statistical physics, Boltzmann.	-	
and relativistic p	hysics, Planck and Einstein. Discovery of radioaktivity, structure of atom, atomic nucleus, Rutherford and Bohr. The way to nuclear en	ergy, Elementary r	particles,
	standard model. The concept of Nature and Universe of today.		
02FY1	Physics 1	Z,ZK	4
History, principles	s and applications of mechanics, waves and thermodynamics? basic level. The lecture is supplemented with practical investigation are	d demonstration o	f selected
	physical phenomena.		
02FY2	Physics 2	Z,ZK	4
<u>-</u>	nics, electricity and magnetism, modern physics. The lecture is supplemented with practical investigation and demonstration of select		
04AKS	English Conversation velop the student's communication skills acquired throughout their previous studies. It aims to improve all aspects of oral communica	Z	1 aclosed lliv
	r various communication situations and will master their communication strategy. They will also practise their listening skills in order to		
•	iscussions. The student will be trained to express their ideas clearly and according to current English usage, and become a more con		par iio.pato
04XAM1	English for Intermediate Students M1	7	2
	gned for students who have successfully completed the full secondary school English language course at least at the A2 level of the C	ommon European	
of Reference for La	inguages (CEFR). It provides an introduction into English for Specific and Academic Purposes (ESP, EAP), i.e., into fundamentals of	vocabulary and sty	le typical of
professional oral a	and written communication situations. Thus it covers topics related to the student's life and needs as well as topics of subtechnical interest.	erest. Attention is a	also paid to
	extending the knowledge of grammar issues used in EAP.		
04XAM2	English for Intermediate Students M2	Z	2
	expects the student to have completed the AM1 course. It develops their skills for work with subtechnical texts, focusing also more on	· -	
and lexical items ty	pical of ESP and EAP (e.g., definition, existence and classification of phenomena, object descriptions). Part of the course is also guided revision is included.	writing. It necessar	ry, grammar
0474142	revision is included.		
04XAM3	English for Intermediate Studente M2	7	2 1
The course develop	English for Intermediate Students M3	Z	2
understanding of	os the skills that enable students to cope with features typical of professional style. Increasing attention is paid to developing subtechnication	al vocabulary and i	ndependent
_	professional texts. Great emphasis is placed on distinguishing different levels of formal and informal oral and written communication	al vocabulary and in and their appropria	ndependent ate Czech
_	os the skills that enable students to cope with features typical of professional style. Increasing attention is paid to developing subtechnication	al vocabulary and in and their appropria	ndependent ate Czech
_	by the skills that enable students to cope with features typical of professional style. Increasing attention is paid to developing subtechnical professional texts. Great emphasis is placed on distinguishing different levels of formal and informal oral and written communication source also includes studying abstracts and rules for writing them as well as basic rules for preparing and giving a short presentation or	al vocabulary and in and their appropria	ndependent ate Czech
equivalents. The co	by the skills that enable students to cope with features typical of professional style. Increasing attention is paid to developing subtechnical professional texts. Great emphasis is placed on distinguishing different levels of formal and informal oral and written communication of purse also includes studying abstracts and rules for writing them as well as basic rules for preparing and giving a short presentation of student's field.	al vocabulary and in and their appropria n a chosen topic re ZK	ndependent ate Czech elated to the
equivalents. The control of the course control (20-3)	bs the skills that enable students to cope with features typical of professional style. Increasing attention is paid to developing subtechnics professional texts. Great emphasis is placed on distinguishing different levels of formal and informal oral and written communication burse also includes studying abstracts and rules for writing them as well as basic rules for preparing and giving a short presentation of student's field. English for Intermediate Students Examination	al vocabulary and in and their appropria n a chosen topic re ZK - written (100 min	ndependent ate Czech elated to the
equivalents. The co	s the skills that enable students to cope with features typical of professional style. Increasing attention is paid to developing subtechnics professional texts. Great emphasis is placed on distinguishing different levels of formal and informal oral and written communication burse also includes studying abstracts and rules for writing them as well as basic rules for preparing and giving a short presentation of student's field. English for Intermediate Students Examination ent is the examination as given by the study plan. The examination covers the AM1, AM2, and AM3 courses and consists of two parts	al vocabulary and in and their appropria n a chosen topic re ZK - written (100 min	ndependent ate Czech elated to the
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04XAMZK The course conte (20-3 04XAP1 The course is desi of Reference for grammar, and styl	be the skills that enable students to cope with features typical of professional style. Increasing attention is paid to developing subtechnical professional texts. Great emphasis is placed on distinguishing different levels of formal and informal oral and written communication burse also includes studying abstracts and rules for writing them as well as basic rules for preparing and giving a short presentation of student's field. English for Intermediate Students Examination ent is the examination as given by the study plan. The examination covers the AM1, AM2, and AM3 courses and consists of two parts and min. The student is expected to master the AM syllabus and demonstrate the ability to apply their knowledge gained in the three English for Advanced Students P1 gned for students who have successfully completed the full secondary school English language course (at least the B1 level of the Collanguages - CEFR). It provides an introduction into English for Specific and Academic Purposes (ESP, EAP), i.e., into the fundament e typical of professional oral and written communication situations (fundamentals of terms in mathematics and physics, definitions, gradient and written communication on topics related to the undergraduate's life and needs. It develops skills for free professional writing (with the communication on topics related to the undergraduate's life and needs. It develops skills for free professional writing (with the communication on topics related to the undergraduate's life and needs. It develops skills for free professional writing (with the communication on topics related to the undergraduate's life and needs. It develops skills for free professional writing (with the communication on topics related to the undergraduate's life and needs. It develops skills for free professional writing (with the communication on topics related to the undergraduate's life and needs. It develops skills for free professional writing (with the communication on topics related to the undergraduate's life and needs.	al vocabulary and in and their appropria n a chosen topic research a chosen to	dependent ate Czech elated to the 4 and oral 2 Framework functions, etc). It also
04XAMZK The course conte (20-3 04XAP1 The course is desi of Reference for grammar, and styl covers professional	be the skills that enable students to cope with features typical of professional style. Increasing attention is paid to developing subtechnical professional texts. Great emphasis is placed on distinguishing different levels of formal and informal oral and written communication burse also includes studying abstracts and rules for writing them as well as basic rules for preparing and giving a short presentation of student's field. English for Intermediate Students Examination ent is the examination as given by the study plan. The examination covers the AM1, AM2, and AM3 courses and consists of two parts and min. The student is expected to master the AM syllabus and demonstrate the ability to apply their knowledge gained in the three English for Advanced Students P1 gned for students who have successfully completed the full secondary school English language course (at least the B1 level of the Collanguages - CEFR). It provides an introduction into English for Specific and Academic Purposes (ESP, EAP), i.e., into the fundament e typical of professional oral and written communication situations (fundamentals of terms in mathematics and physics, definitions, grown oral and written communication on topics related to the undergraduate's life and needs. It develops skills for free professional writing (with politic request). If necessary, revision of selected grammar topics is included.	al vocabulary and in and their appropria in a chosen topic reached a	and oral 2 Framework functions, etc). It also application,
04XAMZK The course conte (20-3 04XAP1 The course is desi of Reference for grammar, and styl covers professional	be the skills that enable students to cope with features typical of professional style. Increasing attention is paid to developing subtechnics professional texts. Great emphasis is placed on distinguishing different levels of formal and informal oral and written communication burse also includes studying abstracts and rules for writing them as well as basic rules for preparing and giving a short presentation of student's field. English for Intermediate Students Examination ent is the examination as given by the study plan. The examination covers the AM1, AM2, and AM3 courses and consists of two parts and min). The student is expected to master the AM syllabus and demonstrate the ability to apply their knowledge gained in the three English for Advanced Students P1 gned for students who have successfully completed the full secondary school English language course (at least the B1 level of the Calanguages - CEFR). It provides an introduction into English for Specific and Academic Purposes (ESP, EAP), i.e., into the fundament e typical of professional oral and written communication situations (fundamentals of terms in mathematics and physics, definitions, growled or professional oral and written communication or topics related to the undergraduate site and needs. It develops skills for free professional writing (with politic request). If necessary, revision of selected grammar topics is included. English for Advanced Students P2	al vocabulary and in and their appropria in a chosen topic research a chosen t	andependent ate Czech elated to the 4 and oral 2 Framework functions, etc). It also application,
04XAMZK The course contection (20-3) 04XAP1 The course is desi of Reference for grammar, and styl covers professional 04XAP2 The AP2 course is	be the skills that enable students to cope with features typical of professional style. Increasing attention is paid to developing subtechnical professional texts. Great emphasis is placed on distinguishing different levels of formal and informal oral and written communication burse also includes studying abstracts and rules for writing them as well as basic rules for preparing and giving a short presentation of student's field. English for Intermediate Students Examination ent is the examination as given by the study plan. The examination covers the AM1, AM2, and AM3 courses and consists of two parts and min. The student is expected to master the AM syllabus and demonstrate the ability to apply their knowledge gained in the three English for Advanced Students P1 gned for students who have successfully completed the full secondary school English language course (at least the B1 level of the Collanguages - CEFR). It provides an introduction into English for Specific and Academic Purposes (ESP, EAP), i.e., into the fundament e typical of professional oral and written communication situations (fundamentals of terms in mathematics and physics, definitions, grown oral and written communication on topics related to the undergraduate's life and needs. It develops skills for free professional writing (with politic request). If necessary, revision of selected grammar topics is included.	al vocabulary and in and their appropria in a chosen topic research a chosen topic research action and their appropria in a chosen topic research action and their appropriate in a control	andependent ate Czech elated to the delated to the

The course extends the student's subtechnical vocabulary, and includes fundamental notions of chosen branches of science. It is focused on formal writing including the sentence and paragraph structure, linking, cohesion and coherence in texts. English for Advanced Students P3 04XAP3 7 2 The AP3 course is based on AP2 and expects the student to work without any guidance with authentic professional materials and to interpret the text. It includes training oral and written communication skills and functions (e.g., expressing an opinion, agreement, and objections; taking part in discussion, note-taking; summarizing, writing an abstract) and, if possible, also preparing a project on a given or chosen topic and presenting it. The course places emphasis on distinguishing levels of formal and informal language both in oral and written communication. 04XAPZK English for Advanced Students Examination The course content is the examination as given by the study plan. The student is supposed to demonstrate mastering the AP3 syllabus and the ability to apply their knowledge obtained in the three AP courses. The examination consists of 2 parts - written (110 min) and oral (30 min) and includes also oral presentation of a topic from the student's field of study. Czech for Foreigners - Intermediate 1 2 The course is focused on correct pronunciation, important morphological phenomena, prepositional phrases, and verb forms as well as on extending the student's vocabulary for various social situations. 04XCESM2 Czech for Foreigners - Intermediate 2 7 2 The course develops the topics covered in CESM1 and is then focused on more difficult grammar phenomena. It practices writing, speaking, and reading skills and trains the student in understanding common abbreviations, abbreviated words, and mathematical terms and formulas. 04XCESM3 Czech for Foreigners - Intermediate 3 The last course revises morphological topics covered earlier and extends the student's knowledge of more difficult language phenomena. It is especially focused on stylistics and lexicology and on developing the student's writing skills. 04XCESMZK Czech for Intermediate Students Examination ZK 4 The course content is the examination as given by the study plan. The examination consisting of a written and oral part covers all the topics of the CESM1,2,3 courses and can only be taken after successful completion of the 3 courses. Detailed information is to be obtained from the teacher. 04XCESP1 Czech for Foreign Students - Advanced 1 The prerequisite of the course is very good knowledge of the Czech language, i.e., communicative competences at least at level B2 of the Common European 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 science. Students are taught the basics of functional style of engineering and professional communication, both in spoken and written form. The topics include University Studies and Student Life. Written practice includes communication with teachers and faculty administrators. 04XCESP2 Czech for Foreigners - Advanced 2 Ζ 2 This course extends the student's knowledge acquired in CESP1 and focuses on difficult language phenomena. It practises working with technical and specialist texts placing greater emphasis on individual work. 04XCFSP3 Czech for Foreigners - Advanced 3 Ζ 2 The course develops the student's knowledge from CESP2. It includes working with authentic specialist materials, their interpretation and presentation, and, finally, presentation of the student's project. Writing skills necessary for professional communication are trained. 04XCESPZK Czech for Foreign Students - Advanced Examination ZK 4 The course content is the examination as given by the study plan. The examination consisting of a written and oral part covers all the topics of the CESP1,2,3 courses and can only be taken after successful completion of the 3 courses. Detailed information is to be obtained from the teacher. 04XCESZ1 Czech for Foreigners - Beginners 1 2 The course is designed for students on the English programme. Students will become acquainted with the main characteristics of Czech (phonetic and grammar features) and they will acquire basic language and speaking skills. The course focuses on pronounciation exercises, simple social phrases, and oral and written communication in the most common communicative situations. The course covers roughly lessons 1-5 in "Chcete mluvit esky" by H. Remediosová and E. echová. At the end of the course, the students will have reached A1 (CEFR) approximately. Czech for Foreigners - Beginners 2 The language and communication competences acquired in CESZ1 are further developed. Students extend their knowledge of Czech declension and conjugation system and practise communication of frequent topics. The course covers roughly lessons 6-10 in "Chcete mluvit esky" by H. Remediosová and E. echová. At the end of the course, the students will have reached A2 (CEFR) approximately. 04XCESZ3 Czech for Foreigners - Beginners 3 The course further develops the language and communication competences acquired in the XCESZ1 and XCESZ2 courses. The teaching focuses on building up basic vocabulary, correct pronunciation, deepening grammar, including grammar practice, and introducing Czech culture. Students are asked to produce simple texts and they practise frequent types of dialogue. They also practise understanding texts in terms of main ideas or looking for specific details in texts. The course covers roughly lessons 5-7 in " eština expres 1". 04XCESZZK Czech for Foreigners - Beginners - Examination ZK The course content is the examination as given by the study plan. The examination consisting of a written and oral part covers all the topics of the 04XCESZ1,2,3 courses 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 French - intermediate FM The objective of this three-semester course is to improve and further develop communication in the French language in both written and oral form. Students will be able to communicate in social interaction and in academic, scientific and professional environment. They will be able to use the language to transmit general and technical information and to solve problems. FM1 The course builds on and further develops linguistic competence acquired at secondary school. It revises, systemizes and expands language skills gained in previous study. The following topics are covered: University studies in our country and in France, writing of transactional letters. CV personal statement, request, answer to an advert, French culture and geography, Paris. Topics of specialization: mathematics, physics. Reading technical and popular science texts, work based on these texts. French for Intermediate Students M2 Course FM2 builds on FM1. Linguistic structures and competence acquired in previous study are systemized and expanded. Reading popular science texts, features typical for technical and scientific language (passives, nominalization, word formation). Topics: physics, power engineering, environment, Internet, success of French science and technology, French scientists, artists and architects. Description of an object, device, shapes, dimensions, material. 04XFM3 French for Intermediate Students M3 The course is focused on improvement and further development of linguistic competence acquired during the follow-up courses. Syntactic structures (subordinate and infinitive clauses, participle structures, compound tenses). Text summary. -Students prepare a written paper which will be delivered in form of an oral presentation in-class. The paper is linked to the field of students' future specialisation or to their interest and generally covers a technical /applied science topic. It is not a translation but a creative work compiled from French articles and one's own knowledge/experience. -Longer monologues on topics /situations set for the examination are prepared. Text structure, cohesion and coherence. 04XFMZK French for Intermediate Students Examination The content is the examination as given by the study programme. The whole French programme is ended with an examination covering the contents of FM1-FM3. The examination consists of a written and oral part and is organized according to Examination Instructions, a document available on the web.

04XFP1 French for Advanced Students P1 Z 2
FP advanced course The objective of this three-semester course is to improve and further develop communication in the French language in both written and oral form. Students will be able to communicate in excitation and in academic extension and the provided an
be able to communicate in social interaction and in academic, scientific and work environment. They will be able to use the language to transmit general and technical information and to solve problems. FP1 The course builds on and further develops linguistic competence acquired at secondary school. Difficult grammar topics are repeated and expanded: subjonctif,
passé composé-imparfait, pronouns. The following specific topics are covered: University studies in our country and in France, writing of transactional letters, CV, personal statement,
request, answer to an advert, environmental issues, success of French science and technology, chosen topics from French regional culture, Paris. Topics of specialization: mathematics,
internet, physics, chemistry. Reading of technical and popular science texts, further work with these texts and interpretation.
04XFP2 French for Advanced Students P2 Z 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 given topics. Features typical of technical and scientific communication are stressed (passive voice, nominalization, word formation).
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 engineering environment. Special
skill - translation of shorter texts (both from and into the language). Writing of a paper and making oral presentation in-class. The paper generally covers a technical /applied science
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 and is organized according to
Examination Instructions, a document available on the web. Assessment of the presentation is included into the examination grading. O4XFZ1 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 socializing and in professional life.
The course includes French for specific / technical communication and reading of popular science and scientific texts. FZ1 The objective is to be able to communicate at elementary
level, actively using the knowledge of chosen elementary language. The contents is roughly outlined by lessons 1 - 7 of the textbook Pravda - Pravdová, French for beginners
(Francouzština pro za áte ky). It is extended with situations of communication and functions from the textbook Espaces I, lessons 1-4: introductions, personal information, asking and
giving the directions, simple instructions and questions. Special attention is paid to pronunciation. Spelling is explained in connection with pronunciation and grammar.
04XFZ2 French for Beginners Z2 Z 2 The source is liabled up with F74. Elementary linguistic legislated and communication bills are expended. The copie is given by legence 9, 43 of the toy the element of the copie is given by legence 9, 43 of the toy the element of the copie is given by legence 9, 43 of the toy the element of the copie is given by legence 9, 43 of the toy the element of the copie is given by legence 9, 43 of the toy the element of the copie is given by legence 9, 43 of the toy the element of the copie is given by legence 9.
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 textbook: Pravda - Pravdová : French for Beginners . Additional topics and skills are filled in from the textbook Espaces I, lesson 1 - 5 (introductions, invitation, welcoming, agreement - disagreement, apology,
thanking, travelling, map of France, food, expression of will, wish, order, prohibition, pleasure). Correct pronunciation is practiced. Stress on oral communication. Specific topics 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 - Pravdová: French for Beginners.
Topics, functions and situations are complemented from other materials. Stress is put on oral communication in dialogues and on reading, both for information 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 contents is roughly covered with
lessons 19 - 23 of the textbook French for Beginners, and is expanded with topics and functions from other materials. Reading is developed from the lecture notes French for Engineering
Students of FJFI. The course covers generals and specific topics: health- illness, sport, free time, environment, study, travelling in France, Paris, shopping, weather, university 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. They present it orally in the class. The
general contents is covered 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 French science and technology, information about France. Grammar is systemized and complemented with syntax (subordinate clauses, typical conjunctions,
subjunctive clauses, gerund, passive.
04XFZZK French for Beginners Examination ZK 3
The content is the examination as given by the study plan. The course is terminated with an examination consisting of oral and written part. The examination is ruled by the document
Instruction for examination. Its content covers the levels FZ1 - FZ5.
04XNM1 German for Intermediate Students M1 Z 2 The objective of the course is to level off the students ´skills in the German language. The course focuses on revision of more difficult phenomena and structures (e.g. the passive) and
word formation processes (e.g. importance of verb prefixes). In the lexical part, it covers topics referring to higher education in both the Czech Republic and Germany, current
environmental issues together with all necessary expressions and phrases, expressions and phrases needed to chemists, mathematicians, physicists, and the fundamentals of IT
terminology. It develops communication on related topics and is aimed at correct pronunciation, grammatical correctness and understandability.
04XNM2 German for Intermediate Students M2 Z 2
The course introduces other more complex grammatical structures and their application in communication based on technical texts, such as the relation between technology and society, the world at the beginning of the 21st century, linguistically more demanding texts on the environment, the language of mathematics, computers and car technology etc. Students
practise reading for information and reading aloud, and appropriate language for various purposes in oral and written communication. The course systematically revises other grammatical
phenomena important for professional discourse (participles, relative clauses).
04XNM3 German for Intermediate Students M3 Z 2
The course introduces other more complex grammatical structures and their application in communication based on technical texts, such as the relation between technology and society,
the world at the beginning of the 21st century, linguistically more demanding texts on the environment, the language of mathematics, computers and car technology etc. Students
practise reading for information and reading aloud, and appropriate language for various purposes in oral and written communication. The course systematically revises other grammatical phenomena important for professional discourse (participles, relative clauses).
04XNMZK German for Intermediate Students Examination ZK 4
The course content is the examination as given by the study plan. The whole German for Intermediate Students Course is completed by an examination consisting of two parts - written
and oral, which cover the courses NM1 - NM3. The oral part follows after passing the written part successfully and after obtaining the 04NM3 assessment. More detailed information
is to be obtained from the teacher.
04XNP1 German for Advanced Students P1 Z 2
This course requires good grammar knowledge, extended general vocabulary, and good communication skills acquired at secondary school to be levelled off at the beginning of the
course. The course is then focused on working with technical and scientific texts and practising reading techniques (skimming, scanning, reading for detail). It revises and develops more difficult grammar structures necessary for understanding a subtechnical text (passive voice, participles, participle structures) and it also focuses on practical everyday communication,
i.e., telephoning.

04XNP2	German for Advanced Students P2	Z	2
	os the students' skills in working with professional scientific texts (understanding, summarising, note-taking, interpreting) while extending It introduces mathematical expressions and texts of nuclear power engineering. Increasing emphasis is placed on understanding and pra	•	
	oth written and oral (CV, letter of application, interview, scholarship), and more complex grammatical structures (i.e., subjunctive, indi	-	nunication,
04XNP3	German for Advanced Students P3	Z	2
	sts of 3 main parts (general communicative situations, grammar and technical topics). Students will develop their vocabulary in a varient of a main parts (general communicative situations, grammar and technical and subtechnical texts, the voca	-	
nuclear power er	ngineering, the environment, computer science, and car technology, will also be extended. Only authentic professional texts are used.	By means of a pres	sentation,
students are traine	d to process information gained from their reading of complex and difficult texts and present it to the class in a simplified oral form. The c practice to and from German.	ourse also includes	translation
04XNPZK	German for Advanced Students Examination	ZK	4
	nt is the examination as given by the study plan. The whole German for Advanced Students Course is completed by an examination co		
and oral, which	cover 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.	assessment. More	detailed
04XRM1	Russian for Intermediate Students M1	Z	2
	gned for students with previous knowledge of Russian from secondary schools. Students are supposed to know the Russian alphabet (-	
	or communication in everyday situations (introductions, socializing, greetings, shopping for food and objects of everyday need, asking sic grammar structures (verbal and nominal forms, irregular verbs, pronouns). The initial knowledge corresponds to the achievement l		
they can use be	contents and scope of the course correspond approximately to the RZ3 course, but for half of the time allotted in the timetab		iise. The
04XRM2	Russian for Intermediate Students M2	Z	2
	The course is based on the RM1 course, its contents and scope correspond roughly to RZ4, however, for half of the time allotted in the	e timetable.	
04XRM3 The course develo	Russian for Intermediate Students M3 ps the knowledge and skills acquired in RM1 and RM2 and its contents and scope are roughly at the same level as those of RZ5, howe	Z ever, for half of the time	2 me allotted
	in the timetable.		
04XRMZK	Russian for Intermediate Students Examination	ZK	4
	nt is the examination as given by the study plan. The course is completed by taking a written and oral examination testing the knowled Jents are eligible for the oral examination only after a prior pass in RM3 and a successful written examination. Students are given instr	•	
04XRP1	Russian for Advanced Students P1	Z	2
	purement for the course is to achieve the B1 CEFR level. The objective of the course is revision of standard language structures, prac	_	
	structures, understanding the fundamentals of technical language and training writing skills.	g	9
04XRP2	Russian for Advanced Students P2	Z	2
The course is ba	sed on RP1. It expands grammatical structures important for understanding technical texts (verbal adjectives, participles, passives, ve	rb aspects, specific	syntactic
0.41/DD0	structures). Stress is put on independent oral and written communication.	T	
04XRP3	Russian for Advanced Students P3 ed on RP2 and is mainly focused on working with technical and scientific texts (reading comprehension, oral and written paraphrasing	Z z translation) The F	2
	nod previous knowledge of general language at secondary level (listening, reading, correct communication in everyday situations). The	-	
	er study is aimed at professional and technical skills (reading technical literature according to the students' specialization, oral and wr	="	-
develop their subte	echnical vocabulary and practice quick and correct communication in professional situations. They will be able to both speak write accurately	urately and with con	nfidence on
0.4\/D.D.7\/	technical topics.	71/	
04XRPZK	Russian for Advanced Students Examination It is the examination as given by the study plan. The course is completed by taking a written and oral examination testing the knowled	ZK Ine and skills acquir	4 red in RP1
	dents are eligible for the oral examination only after a prior pass in RP3 and a successful written examination. Students are given instr	-	
04XRZ1	Russian for Beginners Z1	Z	2
The course repres	ents the first stage of the five-semester programme, its final aim being reading and understanding professional texts written in Russian	. Thus it begins with	mastering
the Russian alpha	bet (for both reading and writing skills) and fundamentals of grammar necessary for everyday communication (listening and speaking)	. Students will be al	ble to read
047072	a short text with marked stress, understand its contents and summarize it.	7	
04XRZ2 The second seme	Russian for Beginners Z2 ster of the programme is designed to teach skills for basic communication in everyday situations and for reading easy and short subte	Z echnical texts. Stude	2 ents will be
	ate using short sentences and appropriate structures, and read aloud with confidence a short text without marked stress. They will also		
	master further grammatical structures. They will have mastered with confidence the Russian alphabet and will be able to use it in	writing.	
04XRZ3	Russian for Beginners Z3	Z	2
	ed on RZ2 and includes further everyday topics, develops understanding of short compact texts on new subtechnical topics (for training		•
and listerling) at	nd introduces new grammar. Students will be trained to distinguish intonation patterns while listening to spoken language. They will be understood, and to express their opinion. Writing skills will be trained on guided writing tasks and note-taking.	able to respond so	as to be
04XRZ4	Russian for Beginners Z4	Z	2
	ed on RZ3. It improves and expands the knowledge of general language in all four skills (reading and understanding longer texts with a company of the compan	I .	
	nunication in everyday situations, writing longer texts). Students are trained to use grammar structures effectively (e.g., irregular verbs		
	dality, imperatives, conditionals). They practice and develop communication skills for everyday situations (food, travelling, free time), a	•	
communication	on more specific topics (environment, addictions, the green movement). They become acquainted with various geographical data (e.g. forms, look up the information from the timetable, learn about Russian holidays and typical meals.	, Siberia), learn nov	w to till in
04XRZ5	Russian for Beginners Z5	7	2
	s the student to have completed RZ4. It concentrates predominantly on reading skills (working with professional texts, i.e. understandin	g, extracting and su	
	specialized text) and speaking, and to a certain extent, writing about the professional information obtained by reading the texts. Comm		
	Phydring grammar is based as professional and technical toyle and only includes items typically used in professional communication /		
	Studying grammar is based on professional and technical texts and only includes items typically used in professional communication (articipies,
	ve voice). Students develop their technical and economic vocabulary, and are also trained in some professional skills (writing a CV, po	olite request, etc.)	
04XRZZK	ve voice). Students develop their technical and economic vocabulary, and are also trained in some professional skills (writing a CV, po	olite request, etc.)	3
04XRZZK The course conte	ve voice). Students develop their technical and economic vocabulary, and are also trained in some professional skills (writing a CV, po	lite request, etc.) ZK Ige and skills acquir	3 red in RZ1
04XRZZK The course conte	ve voice). Students develop their technical and economic vocabulary, and are also trained in some professional skills (writing a CV, por Russian for Beginners Examination at its the examination as given by the study plan. The course is completed by taking a written and oral examination testing the knowled	lite request, etc.) ZK Ige and skills acquir	3 red in RZ1
04XRZZK The course conte - RZ5. Stud 04XSM1	ve voice). Students develop their technical and economic vocabulary, and are also trained in some professional skills (writing a CV, po Russian for Beginners Examination It is the examination as given by the study plan. The course is completed by taking a written and oral examination testing the knowled dents are eligible for the oral examination only after a prior pass in RZ5 and a successful written examination. Students are given instr	ZK Ige and skills acquiructions by the teach	3 red in RZ1 ner.
04XRZZK The course conte - RZ5. Stud 04XSM1 The course is de vocabulary and p	ve voice). Students develop their technical and economic vocabulary, and are also trained in some professional skills (writing a CV, po Russian for Beginners Examination In tis the examination as given by the study plan. The course is completed by taking a written and oral examination testing the knowled dents are eligible for the oral examination only after a prior pass in RZ5 and a successful written examination. Students are given instrained in the students are given instrained. Spanish for Intermediate Students M1	Ilite request, etc.) ZK Ige and skills acquiructions by the teach Z er course develops e form of the impera	3 red in RZ1 ner. 2 standard ative, and

04XSM2			
	Spanish for Intermediate Students M3	Z	2
The course devel	ops the students' knowledge from the previous course (SM1). Students are gradually acquainted with fundamentals of Spanish for spe able to work with specialized texts on the Internet.	ecific purposes in	order to be
04XSM3	Spanish for Intermediate Students M3	Z	2
	are supplemented with additional subtechnical materials, so the students will be gradually acquainted with the peculiarities of academic		
	Internet in Spanish and search for information of their specialization or field of interest. Students will use the information to write shor final part of the programme, general Spanish course based on course books, covers presentations and, finally, a written and oral example of the programme		maries. The
04XSMZK	Spanish for Intermediate Students Examination	ZK	4
The course conter	t is the examination as given by the study plan. SMZK examination consists of two parts - written and oral; to be eligible for the written part. non-graded assessment for course SM3.Oral examination follows the written part.	ırt, students will ha	eve obtained
04XSP1	Spanish for Advanced Students P1	Z	2
Course concentrat	es on more difficult grammar topics, revision of vocabulary, basics of Spanish for specific purposes as well as written communication. of CEFR.	Course prerequisi	tes: level B2
04XSP2	Spanish for Advanced Students P2	Z	2
Course SP2 is the	second part of the advanced Spanish course, extending Spanish for specific purposes topics. It comprises more grammar and syntax written communication.	and focuses on in	ndependent
04XSP3	Spanish for Advanced Students P3	Z	2
Course SP3 is the	final part of the advanced Spanish course. It is based on texts chosen by the students according to their future specialization. It is focu- based on what students will need in their career.	sed on written con	nmunication
04XSPZK	Spanish for Advanced Students Examination	ZK	4
The course conter	t is the examination as given by the study plan. Examination SPZK consists of two parts, namely oral and written. The prerequisite for a passed the written test. Examination content is based on syllabi of courses SP1, SP2, and SP3 or on an individual study plan of the	=	art is having
04XSZ1	Spanish for Beginners Z1	Z	2
	first stage of the five-semester programme of Spanish studies; during the first stage the students will master phonetics and fundament communicate at an elementary level on topics of everyday life. They will acquire and extend fundamental vocabulary of general Spani	•	
04XSZ2	Spanish for Beginners Students Z2	Z	2
	ed on course SZ1, and expects students to develop and extend the knowledge and skills acquired so far. Grammar structures and lexis		
them to understan	d short adapted written texts and speech. Attention is also paid to cultural differences between Spanish-speaking countries and others Realia of Spanish-speaking countries are also included.	such as the Czec	ch Republic.
04XSZ3	Spanish for Beginners Z3	Z	2
	ed on course SZ2, and develops the student's vocabulary and grammar structure. The course covers realia (history and culture) of the		_
mainly of Spain.	It pays attention to further grammar topics (pretérito perfecto, pretérito indefinido, pretérito imperfecto, the gerund and the imperative) communication on a given general topic, for which the student is trained by reading texts or listening to them.	. It includes writter	i aliu ulai
04XSZ4	Spanish for Beginners Z4	Z	2
	ed on course SZ3. It develops the student's vocabulary and extends the knowledge of the culture and social customs of the Spanish:	speaking countries	s, mainly of
Spain. It pays atte	ntion to further grammar topics (perifrasis verbales, futuro imperfecto, direct object and indirect object pronouns, negative form of the	-	ubjunctive),
24)/075	to written and oral communication on a given general or subtechnical topic, for which the student is trained by reading texts or listening	-	
04XSZ5	Spanish for Beginners Z5 are supplemented with additional subtechnical materials, so the students will be gradually acquainted with peculiarities of Spanish for	Z r aposifia purposas	2
The course books	part, the general Spanish course based on the course book will end with presentations and, finally, a written and oral examinat		s. III IIS IIIIdi
04XSZZK	Spanish for Beginners Examination	ZK	3
The course cont	rent is the examination as given by the study plan. Examination consists of two parts - written and oral. Student can register for oral examination test.		e/she has
12AUX	Administration of UNIX System		2
		KZ	
	Basic and more advanced administration of Unix operating system	KZ	
12NME1	1	K∠ Z,ZK	4
There are explained	Basic and more advanced administration of Unix operating system Numerical Methods 1 d the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology. Met	Z,ZK thods for solution o	of tasks very
There are explained	Basic and more advanced administration of Unix operating system Numerical Methods 1 d the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology. Met	Z,ZK thods for solution o	of tasks very
There are explaine important for phys	Basic and more advanced administration of Unix operating system Numerical Methods 1 d the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology. Meticists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated computations used as a principle programming language as a demonstration tool. The seminars are held in computer laboratory.	Z,ZK thods for solution c ional environment	of tasks very MATLAB is
There are explaine important for physical street important for phy	Basic and more advanced administration of Unix operating system Numerical Methods 1 d the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology. Met	Z,ZK thods for solution of ional environment	of tasks very MATLAB is
There are explained important for physical street important for ph	Basic and more advanced administration of Unix operating system Numerical Methods 1 d the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology. Met icists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated computati used as a principle programming language as a demonstration tool. The seminars are held in computer laboratory. Scientific Programming in Python	Z,ZK thods for solution of ional environment Z and on effective solutions	MATLAB is 2 Itions to real
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There are explained important for physician important for physician and the second problems. The control involved in ongoing greater part of the second problems.	Basic and more advanced administration of Unix operating system Numerical Methods 1 d the basic principles of numerical mathematics important for numerical solving of problems important for physics and technology. Met icists (ordinary differential equations, random numbers) are included in addition to the basic numerical methods. Integrated computati used as a principle programming language as a demonstration tool. The seminars are held in computer laboratory. Scientific Programming in Python urse is to learn the fundamentals of the modern Python programming language with a focus on scientific computing. Emphasis is place ourse is performed in an interactive form of practical exercises, whose topics can be tailored to the content of other subjects or studering research. In the introductory part of the course, students learn the basic features of Python?from basic types to object oriented or the course focuses on specific features of Python for scientific programming. Presented are the main numerical libraries NumPy, SciPy library. We show how to generate efficient code, how to combine Python with other languages, what tools are available.	Z,ZK thods for solution of conal environment Z and on effective solunt theses. Students functional program and the Matplotlib	of tasks very MATLAB is 2 titions to real are also arming. The organics
There are explained important for physician important for physician important for physician important for physician involved in ongoing greater part of the state	Basic and more advanced administration of Unix operating system Numerical Methods 1 differential equations, random numbers) are included in addition to the basic numerical methods. Integrated computations used as a principle programming language as a demonstration tool. The seminars are held in computer laboratory. Scientific Programming in Python	Z,ZK thods for solution of ional environment Z and on effective solution theses. Students functional program and the Matplotlib	of tasks very MATLAB is 2 titions to real are also mining. The properties of graphics
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There are explained important for physician important for physician problems. The comproblems. The comproblems involved in ongoing greater part of the state of t	Basic and more advanced administration of Unix operating system Numerical Methods 1	Z,ZK thods for solution of the	of tasks very MATLAB is 2 titions to real are also are also praphics 2 software. s: vi, emacs. er interface
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There are explained important for physician important for physician problems. The control involved in ongoing greater part of the second greater part of the	Basic and more advanced administration of Unix operating system Numerical Methods 1	Z,ZK thods for solution of the computer of the	of tasks very MATLAB is 2 titions to real as are also ming. The properties of graphics 2 software. Services: 2 software. Services: 2 software. Services: 2 algorithms,

14TED	Creating Electronic Documents	Z	2
Basic skills for crea	ating and presenting student theses. Individual exercises focus on creating and formatting texts, equations, charts, tables, presentation	ns and entire docu	ments in an
	office suite.		
18AOV	Applied operational research	Z,ZK	4
The course is an ir	ntroduction course to selected models and methods for economic decision making. The main attention is given to the introduction to the	ne methods and po	ssibilities of
	their real applications and problem solving by means of the current software products.		
18BPSE1	Bachelor Thesis 1	Z	5
The bachelor proje	ect is based on a topic approved by the administrators of the programme, department and by the dean. The student is guided by the proj	ect supervisor duri	ng common
	regular meetings and discussions.		
18BPSE2	Bachelor Thesis 2	Z	10
The bachelor proje	ect is based on a topic approved by the administrators of the programme, department and by the dean. The student is guided by the proj	ect supervisor duri	ng common
	regular meetings and discussions.		
18EKN	Econometrics	Z,ZK	4
Econometrics is ba	ased on economic theory and the relations between economic quantities are expressed by mathematical tools and observed data from	n economic reality.	The course
covers basic instru	ments of econometric analysis as the basic econometric model, the generalized model, the system of simultaneous equations and instr	uments for econom	netric model
	verification.		
18FV	Fulltext search	Z	2
The aim of the "Fu	illtext search" course is to inform students about methods and data structures for efficient search of strings in text files and with the ba	sic principles of se	arching text
	files in text databases.		
18GUI	Construction og Grafical user nterface	Z	2
The course introdu	uces to the graphical user interface, its design and creation. Practical problems and their solutions will be demonstrated in the exercise	s. Students will lea	rn to create
	simple RAD applications		
18INTA	Development of internet applications	KZ	4
The lectures provide	de an overview of modern technologies for the development of web applications. Students will learn basic web languages and concep	ts (HTML, URL, et	c.) and they
will also be introdu	uced to relational database systems. The tutorials are dedicated to practical examples of building web applications, from the simplest t	to more advanced.	The course
	is oriented primarily towards backend technologies and using the Python languages, but covers also frontend frameworks and Jav	/aScript.	
18MAK1	Macroeconomics 1	Z,ZK	4
Macroeconomics	I provides students with a fundamental theoretical basis for understanding how an economy works. It introduces main macroeconom	ic indicators, mone	ey market,
macroeconomic ed	quilibrium theory, fundamentals of open economy theory, inflation, unemployment, economic growth, economic fluctuations, basic mad	croeconomic mode	els of IS-LM,
AS-AD and their im	plications for economic policies. The learning outcomes of the course is to equip students with ability to analyze macroeconomic phenom	nena and their inter	connections
	and subsequently to use them under the conditions of modern economic life.		
18MAK2	Macroeconomics 2	Z,ZK	4
Macroeconomics	Il extends theoretical knowledge acquired from Macroeconomics I of its students with the latest knowledge of contemporary macroeconomics I of its students with the latest knowledge of contemporary macroeconomics I of its students with the latest knowledge of contemporary macroeconomics I of its students with the latest knowledge of contemporary macroeconomics I of its students with the latest knowledge of contemporary macroeconomics I of its students with the latest knowledge of contemporary macroeconomics I of its students with the latest knowledge of contemporary macroeconomics I of its students with the latest knowledge of contemporary macroeconomics I of its students with the latest knowledge of contemporary macroeconomics I of its students with the latest knowledge of contemporary macroeconomics I of its students with the latest knowledge of contemporary macroeconomics I of its students with the latest knowledge of contemporary macroeconomics I of its students with the latest knowledge of contemporary macroeconomics I of its students with the latest knowledge of contemporary macroeconomics with the latest knowledge of the latest knowle	conomics. They are	models of
economic growth	, especially those with an emphasis on the role of human capital and technological progress. Furthermore, it introduces students to m	odern principles of	economic
modeling, i.e., mad	roeconomic models derived from microeconomic behavior of subjects and economics and their rational expectations. It also provides stu	udents with modern	n knowledge
	of labor market modeling.		
18MIK	of labor market modeling. Microeconomics	Z,ZK	4
Microeconomics is	Microeconomics a set of theories, which help us to understand processes by which the scarce resources are allocated among alternative uses. Micro	economics explain	s the role of
Microeconomics is	Microeconomics s a set of theories, which help us to understand processes by which the scarce resources are allocated among alternative uses. Micro is in these processes and makes more clear behaviour of the economic agents. Lectures and seminars are designed so that the explanation	economics explain	s the role of
Microeconomics is prices and markets	Microeconomics s a set of theories, which help us to understand processes by which the scarce resources are allocated among alternative uses. Micro s in these processes and makes more clear behaviour of the economic agents. Lectures and seminars are designed so that the explanation does not require knowledge of calculus.	economics explains	s the role of nic concepts
Microeconomics is	Microeconomics s a set of theories, which help us to understand processes by which the scarce resources are allocated among alternative uses. Micro s in these processes and makes more clear behaviour of the economic agents. Lectures and seminars are designed so that the explanation does not require knowledge of calculus. Operating Systems Administration	economics explain	s the role of
Microeconomics is prices and markets	Microeconomics s a set of theories, which help us to understand processes by which the scarce resources are allocated among alternative uses. Microes in these processes and makes more clear behaviour of the economic agents. Lectures and seminars are designed so that the explanation does not require knowledge of calculus. Operating Systems Administration Administration of operating systems Windows and Linux. Users, rights, configuration, command line, networks, firewall	economics explains on of microeconom	s the role of nic concepts
Microeconomics is prices and markets	Microeconomics s a set of theories, which help us to understand processes by which the scarce resources are allocated among alternative uses. Micro s in these processes and makes more clear behaviour of the economic agents. Lectures and seminars are designed so that the explanati does not require knowledge of calculus. Operating Systems Administration Administration of operating systems Windows and Linux. Users, rights, configuration, command line, networks, firewall Programming in Java	economics explains	s the role of nic concepts
Microeconomics is prices and markets 18OS 18PJ	Microeconomics s a set of theories, which help us to understand processes by which the scarce resources are allocated among alternative uses. Microes in these processes and makes more clear behaviour of the economic agents. Lectures and seminars are designed so that the explanation does not require knowledge of calculus. Operating Systems Administration Administration of operating systems Windows and Linux. Users, rights, configuration, command line, networks, firewall	economics explains on of microeconom KZ Z,ZK	s the role of nic concepts
Microeconomics is prices and markets 18OS 18PJ 18PMTL	Microeconomics a a set of theories, which help us to understand processes by which the scarce resources are allocated among alternative uses. Micro is in these processes and makes more clear behaviour of the economic agents. Lectures and seminars are designed so that the explanation does not require knowledge of calculus. Operating Systems Administration Administration of operating systems Windows and Linux. Users, rights, configuration, command line, networks, firewall Programming in Java This course is devoted to the Java platform and to the development of the basic types of applications for this platform. Programming in MATLAB	economics explains on of microeconom KZ Z,ZK KZ	s the role of nic concepts 2 5
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Microeconomics is prices and markets 18OS 18PJ 18PMTL	Microeconomics a a set of theories, which help us to understand processes by which the scarce resources are allocated among alternative uses. Micro is in these processes and makes more clear behaviour of the economic agents. Lectures and seminars are designed so that the explanation does not require knowledge of calculus. Operating Systems Administration Administration of operating systems Windows and Linux. Users, rights, configuration, command line, networks, firewall Programming in Java This course is devoted to the Java platform and to the development of the basic types of applications for this platform. Programming in MATLAB	economics explains on of microeconom KZ Z,ZK KZ	s the role of nic concepts 2 5 4 ithmization
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Microeconomics is prices and markets 18OS 18PJ 18PMTL Introducing Matlat 18PPY1 This course introduparadigms. The foll 18PPY2 This course introduparadigms. The foll 18PPY3 This advanced could be advanced could be advanced could be advanced could be advanced for the goal of this course introduced by the goal of this course introduced by the goal of this course introduced by the goal of this course in the goal of this course in the goal of this course in the goal of this course is in the goal of this course in the goal of this course in the goal of the goal of the goal of	Microeconomics a set of theories, which help us to understand processes by which the scarce resources are allocated among alternative uses. Micros in these processes and makes more clear behaviour of the economic agents. Lectures and seminars are designed so that the explanation does not require knowledge of calculus. Operating Systems Administration Administration of operating systems Windows and Linux. Users, rights, configuration, command line, networks, firewall Programming in Java This course is devoted to the Java platform and to the development of the basic types of applications for this platform. Programming in MATLAB be environment as efficient tool for computation in complex arrays and symbolic variables, namely for linear algebra, mathematic analy and geometric representation of results. Programming in Python 1 uces students to advanced features of the Python language and common scientific packages. The course covers both object-oriented as sowing part of the course describes the use of Python language in scientific and technical computing (NumPy and SciPy packages), dat Programming in Python 2 oduces students to practical applications of the Python language in scientific as well as commercial fields. The course is a seminar what accompanied by a short demo of a real-world application in the specific field. Programming in Python 3 urse is intended for students who have basic experience with programming in Python and using its libraries. It introduces students to adianguage and modules they are based on. Programming in C++ 1 This course covers mainly the C programming language and non-object oriented features of the C++ language. Programming in programming Ceutres 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 vaulables software tools that can improve the programmer's work efficient for the programming. It familiarizes the students with the basic c	economics explains on of microeconomics explains on of microeconomics explains on of microeconomics. It is a consistent of the construction of microeconomics explains on of microeconomics explains a processing and vivenere each presente of the construction of the co	s the role of hic concepts 2 5 4 rithmization 2 rogramming isualization. 2 rd topic is 4 4 4 4 4 4 Pascal 2 Pascal

18SVK	Student's Scientific Conference	Z	1
This i	s the active participation of the student in one of the approved student conferences. The list of such conferences is defined by the conferences are conferences as the conference is defined by the conference is defined	ourse guarantor.	•
18UOA	Introduction into Object Oriented Architecture	Z,ZK	4
18ZALG	Basics of Algorithmization	Z,ZK	4
This course is	devoted to selected algorithms and methods for algorithm design. This course intruduces selected methods for the determination of	the algorithm com	plexity.
18ZPRO	Basics of Programming	Z	4
This course is in	tended mainly for students with little or no experience in programming. It familiarizes the students with the basic concepts in prograi	nming and with the	e Python
	programming language.		
TV-1	Physical Education	Z	1
TV-2	Physical Education	Z	1
TV-3	Physical education	Z	1
TV-4	Physical education	Z	1

For updated information see http://bilakniha.cvut.cz/en/FF.html Generated: day 2024-05-19, time 23:53.